TEKTRONIX®

DC POWER SUPPLY

PS 501
PS 501-1
PS 501-2

INSTRUCTION MANUAL

NOTE

Instrument differences between the PS 501-2 and the PS 501 (-1) are listed in this manual at various places. Where no differences are indicated, the PS 501 information applies to the PS 501-2.

TEKTRONIX®

DC POWER SUPPLY

PS 501
PS 501-1
PS 501-2

INSTRUCTION MANUAL

Tektronix, Inc.
P.O. Box 500
Beaverton, Oregon 97005

Serial Number _____

070-1301-01

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All requests for repairs and replacement parts should be directed to the TEKTRONIX Field Office or representative in your area. This will assure you the fastest possible service. Please include the instrument Type Number or Part Number and Serial Number with all requests for parts or service.

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VOLTS
COARSE FINE
OUTPUT
ON
CURRENT LIMIT
MIN
0-20V
400mA
+5V@1A
PS 501 POWER SUPPLY
TEKTRONIX
VOLTS
1
0.0 0
10-20V
OUT
0-10V
OUTPUT
ON
CURRENT LIMIT
MIN
0-20V
400mA
+5V@1A
PS 501-1 POWER SUPPLY
TEKTRONIX
PS 501-2 POWER SUPPLY
CURRENT LIMIT
+ VOLTS
COARSE FINE
MIN
0-20V
400mA
METER
OUT VOLTS
AMP
+5V@1A
ON
OUTPUT
TEKTRONIX

OPERATING INSTRUCTIONS

DESCRIPTION

The PS 501 is a constant-voltage, current-limiting 0 to 20 VDC power supply designed to operate in any compartment of a TM 500 Series Power Module. The PS 501 is a floating power supply in which either terminal may be grounded, or floated to 350 VDC + peak AC. Front-panel controls provide continuously variable voltage selection, as well as current limiting from 0 to at least 400 mA.

The floating supply is suited for powering discrete transistor circuitry, or acting as a bias or reference supply. Several PS 501's or other suitable supplies can be combined for applications involving complementary circuitry, linear integrated circuits, or any circuitry requiring cascading DC levels.

A ground-referenced +5 V auxiliary supply is also included which is suitable for bipolar logic, light-emitting diodes, incandescent displays and similar applications. With the floating supply available for powering discrete interface circuits and level shifting, the PS 501 can be used for many digital/analog applications.

The presence and variability of output voltage is verified by a voltage indicator light on the front panel. The brightness of this light varies with output voltage.

A panel-mounted, light-emitting diode lights when the PS 501 goes into current-limiting. This is a very sensitive indicator which starts to glow before hard limiting occurs. Hard limiting is indicated by maximum brightness of the light-emitting diode as well as a dimming of the voltage indicator light. These functions are easily evaluated by momentarily shorting the output of the supply.

The PS 501-1 is identical to the PS 501 except that the output voltage is selected by a 10-turn precision potentiometer with a 3-digit in-line dial and a range pushbutton. The turns-counting dial allows the output of the PS 501-1 to be set accurately without an expensive external meter. The dial provides accuracy equivalent to that obtained with a 3 1/2 digit DVM.

The PS 501-2 is identical to the PS 501 except that a front-panel meter is provided to aid in accurately setting the output current or voltage of the PS 501-2.

PREPARATION

The PS 501(-1) is calibrated and ready for use when received. It is designed to operate in any compartment of a TM 500 Series Power Module. Refer to the Power Module Instruction Manual for line voltage requirements.

To install the PS 501(-1), align the upper and lower rails of the plug-in with the Power Module tracks and insert until the plug-in panel is flush with the Power Module panel. To remove, pull the release latch to disengage the PS 501(-1) from the Power Module.

CAUTION

Turn the Power Module off before inserting the plug-in; otherwise, damage may occur to the plug-in circuitry.

The following procedure is intended to prepare the instrument for immediate use and demonstrate the basic function of the unit. Operation of the Power Module and other plug-ins in this system are described in their respective instruction manuals. Functions of front-panel controls, indicators and connectors are described on a foldout page at the rear of this manual.

NOTE

Before using the PS 501(-1) read the Operating Considerations in this section regarding proper techniques for connecting various loads, etc.

Constant Voltage/Current Limited Output

1. Press the OUTPUT button to apply power to the plug-in. Observe that the VOLTS indicator light comes on (the light will be very dim at low voltages).

2. Adjust the VOLTS control for approximately 2 V.

NOTE

The use of an external meter is not required for the PS 501-2. The PS 501-2 internal meter can perform the function described in step 3.

3. Set the CURRENT LIMIT control fully ccw (to protect the ammeter). Connect an ammeter across the + and − terminals and adjust the CURRENT LIMIT control for the maximum desired current output.

4. Remove the ammeter, connect the load to the + and − terminals and adjust the VOLTS control for the desired output.

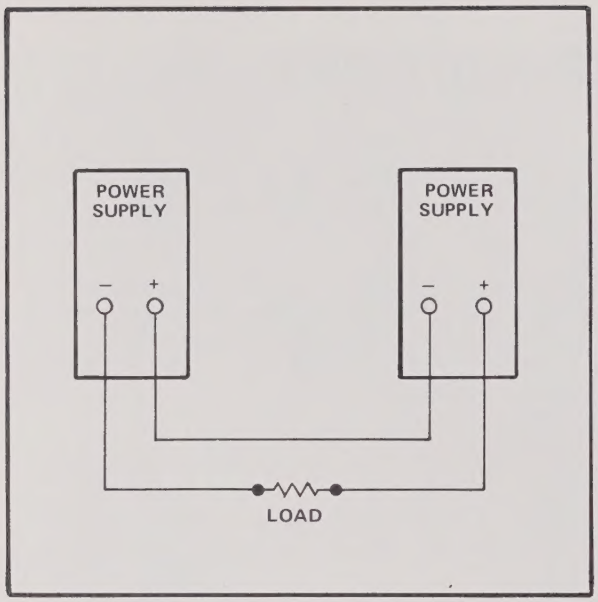


Fig. 1-1. Series-connected supplies.

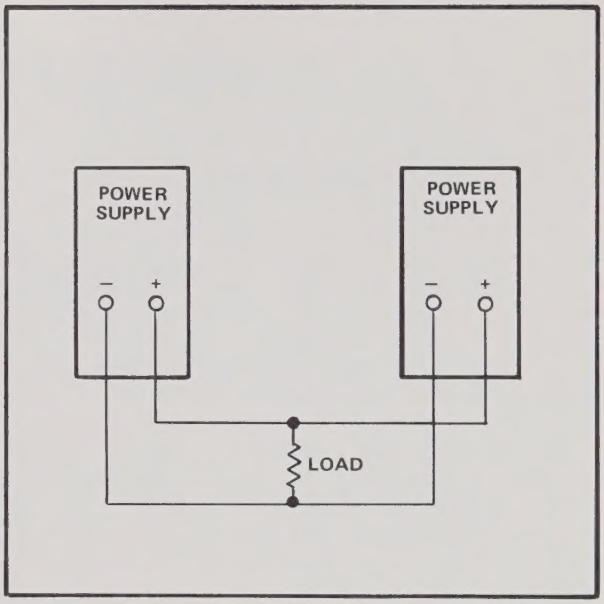


Fig. 1-2. Parallel-connected supplies

Series Operation

The outputs of two or more supplies can be connected in series as shown in Fig. 1-1 to obtain an output voltage equal to the sum of the output voltages from each supply. The maximum output is limited to 350 VDC + peak AC (i.e., the isolation voltage rating between the output terminals and ground). Each supply must be adjusted individually to obtain the desired output voltage.

NOTE

The PS 501 (-1) has internal diodes connected across the output to protect any of the series-connected supplies against reverse polarity if the load is shorted, or one of the supplies is not on.

Parallel Operation

The outputs of two or more current-limiting, automatic-crossover supplies can be connected in parallel as shown in Fig. 1-2 to obtain an output current equal to the sum of the output currents from each supply. Each supply must be adjusted individually to obtain the desired output current.

One supply should be set for the desired output voltage and the other should be set for a slightly higher voltage. The supply set for the desired voltage will then become a constant voltage source, while the supply with the higher voltage output becomes a current-limited source (due to automatic crossover) which results in their output voltage decreasing to that of the supply with the lowest output voltage.

APPLICATIONS

Differential Voltage Measurements

Very small DC voltage changes or unknown voltages can be measured by connecting the PS 501 -1, a null detector, and the source under test in a differential configuration as shown in Fig. 1-3. Inexpensive comparison measurements at nearly the accuracy and sensitivity of costly differential voltmeters can be made with the PS 501 -1. The ultimate accuracy and sensitivity of the measurement depends on the PS 501 -1 and the type of null detector used. A calibrated DC amplifier in a high-gain oscilloscope such as the TEKTRONIX 5100-Series Oscilloscope with a 5A20N Differential Amplifier plug-in will serve as a convenient null detector, or a sensitive milliammeter with a series resistor is also satisfactory.

NOTE

Examine the circuit for ground loops when using a null detector with one input terminal grounded (see Grounded and Floating Operation).

Series- and Parallel-Connected Stair-Step Operation

Series- and parallel-connected PS 501 (-1)'s can be operated to provide a "stair-step" output characteristic by choosing proper load limits and control settings. For example, Fig. 1-4 shows the stair-step output from two series-connected supplies. With each supply set for maximum voltage and current (20 V, 400 mA) the output voltage remains constant from open circuit (∞) until the

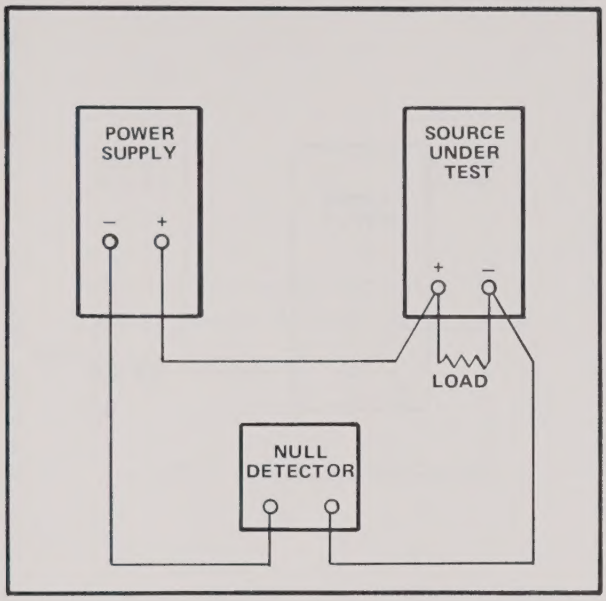


Fig. 1-3. Differential measurement connections.

load reaches approximately 100 Ω as illustrated by the solid line in Fig. 1-4. At this crossover point the output voltage decreases with the load and the output current is limited at 400 mA. Therefore, below approximately 100 Ω, both supplies act as currrent sources with output voltage variable with the load. Since both supplies are set for the same output voltage, each supply shares equally in the power output (I^2R). If one supply is set for a lower output voltage than the other, output power is shared at the same ratio as the output voltage.

Now, by setting supply E_2 for a current limit of 200 mA and varying the load over the same range, the supplies act as constant voltage sources until the load reaches approximately 200 Ω. At that crossover point, the supply set for 200 mA (E_2) becomes a current source and its output voltage decreases with the load. At approximately 100 Ω and 20 V, supply E_2 no longer contributes to the power output. Subsequently, supply E_1 supplies all the output power and operates as a constant voltage source with output current variable with the load. Then, at approximately 50 Ω, supply E_1 crosses over and becomes a current source at its maximum output of 400 mA. Thus, by choosing the appropriate load limits and control settings, any of the four operating characteristics is possible.

Parallel-connected supplies exhibit the same "stair-step" characteristic as in series-connected operation. However, the maximum voltage available is the highest setting of either supply while the maximum current is $I_1 + I_2$.

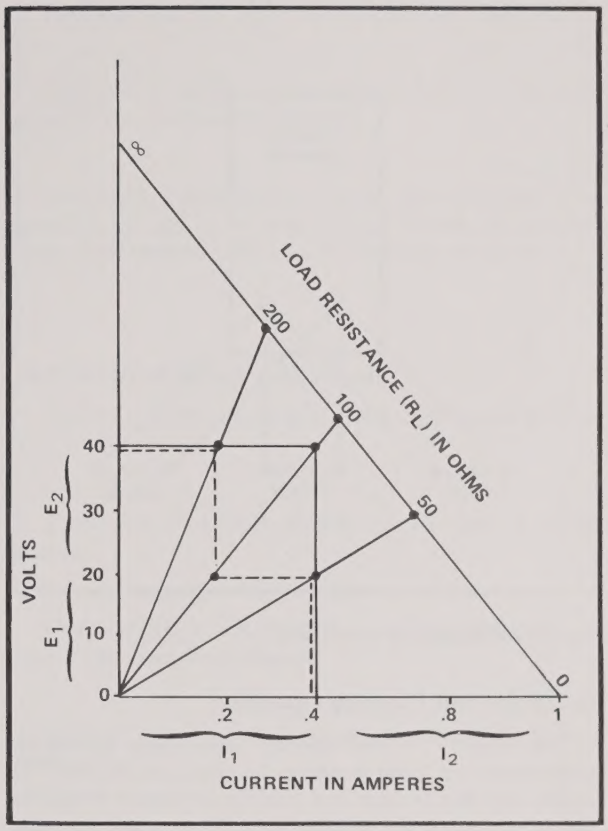


Fig. 1-4. Stair-step output characteristics of series and parallel connected supplies.

OPERATING CONSIDERATIONS

Overheating

The PS 501 (-1) is designed to operate at an ambient temperature from 0°C to +50°C. However, when operating several power supplies in a multi- plug-in Power Module, especially at low output voltages, or when operating close to other heat-producing equipment, internal temperature may exceed safe limits and actuate a thermal cutout. Refer to the Power Module Instruction Manual for more complete information.

Load and Monitor Connections

Improper connections between the power supply output and the load(s) and/or monitoring device(s) are a common cause of errors. Multiple loads must be connected with separate pairs of leads as shown in Fig. 1-5. Monitoring devices must also be connected with separate leads as shown in Fig. 1-6. Avoid using clip leads, since their contact resistance can exceed the output impedance of the PS 501 (-1) and cause significant measurement error.

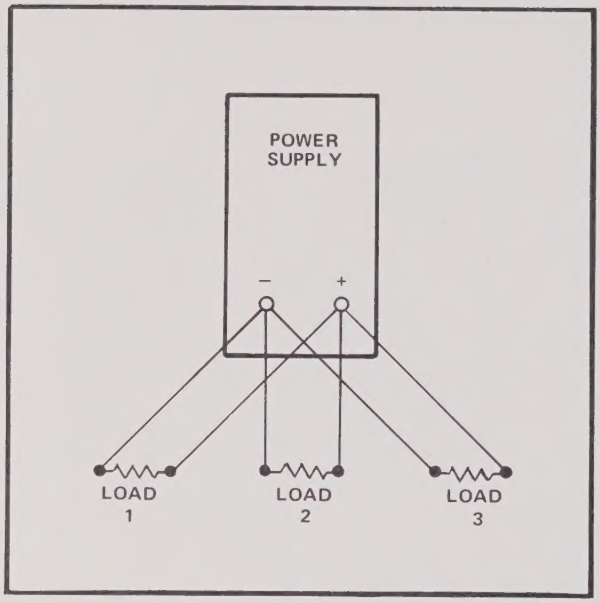


Fig. 1-5. Multiple load connections.

Grounded and Floating Operation

The PS 501 (-1) is a "floating" supply since no internal connections are made to either the chassis or ground. The supply can thus be used as a positive or negative supply by simply grounding the negative or positive output terminal. However, there may be undesirable effects caused by grounding the supply to the chassis while the load is grounded at some point removed from the supply chassis.

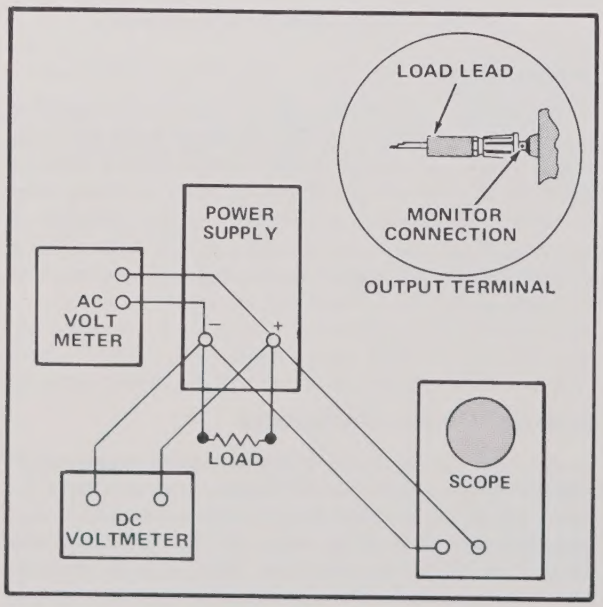


Fig. 1-6. Monitor connections.

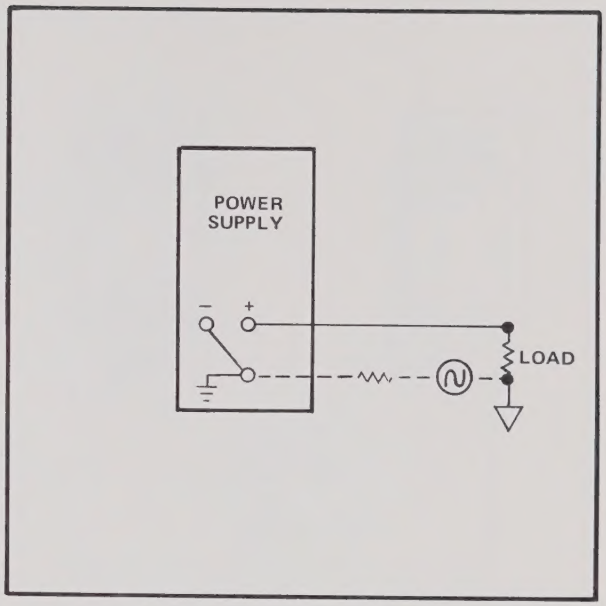


Fig. 1-7. Ground-loop current caused by remote grounded load.

For example, if a remote load is connected as shown in Fig. 1-7, ground currents containing the power line frequency could result and create excessive noise and ripple in series with the load. Thus, floating operation is recommended to insure against problems caused by undesirable ground currents.

Reverse Current Loading

In some bias supply and digital circuitry applications the load might behave as a current source for part of its operating cycle. Since the output circuit of a series regulated supply is unidirectional, current will not pass in the opposite direction except through undesirable paths. The internal reverse-current diodes conduct only when the PS 501 (-1) terminal voltage reverses and therefore will not work when the voltage is correctly polarized. Connecting a shunt resistor (R_s) as shown in Fig. 1-8 provides an external reverse current path so the power supply sources or delivers current only.

Overvoltage

The PS 501 (-1) is not protected from overvoltage conditions. Component failure in the PS 501 (-1) could result in load damage if external protection is not provided. Likewise, if the load (or other instruments connected to the load) produce a voltage across the PS 501 (-1) terminals which is the same polarity but of greater amplitude, damage may result depending on the amount of overvoltage and the impedance of the load (source).

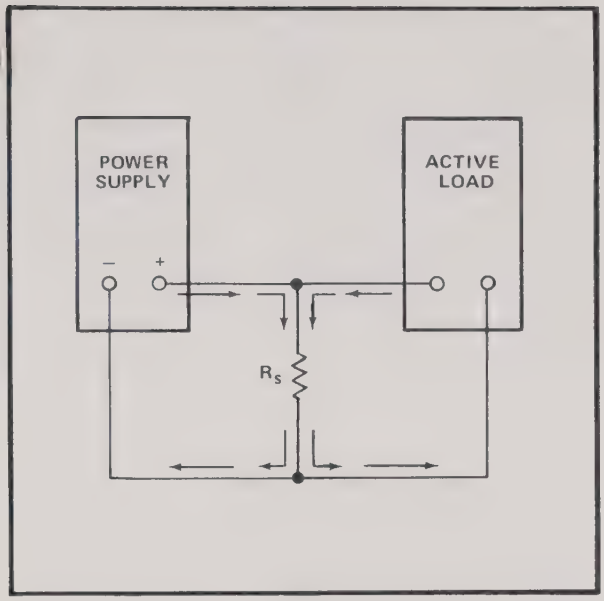


Fig. 1-8. Reverse-current shunt (R_S) with active load.

ELECTRICAL CHARACTERISTICS

Performance Conditions

The electrical characteristics are valid only if the instrument has been calibrated at an ambient temperature between +20°C and +30°C and is operating at an ambient temperature between 0°C and +50°C unless otherwise noted.

20 V Floating Supply

OUTPUT: Continuously variable from 0 to at least ±20 VDC. Insulated for 350 VDC + peak AC above ground. Continuously variable current limit from 0 to at least 400 mA.

MINIMUM RESOLUTION: 10 mV.

LOAD REGULATION: Within 1 mV with a 400 mA load change.

LINE REGULATION: Within 5 mV for a ±10% line voltage change.

RIPPLE AND NOISE: 0.5 mV P-P or less. 0.1 mV RMS or less if current is not being limited (noise and ripple increase unpredictably when current is being limited).

TEMPERATURE COEFFICIENT: 0.01%/°C or less.

STABILITY: 0.1% + 5 mV or less drift in 8 hours at constant line, load and temperature.

TRANSIENT RECOVERY TIME: 20 μs or less for a constant voltage to recover within 20 mV of nominal output voltage after a 400 mA change in output current.

+5 V Ground-Referenced Supply[1]

OUTPUT (+20°C to +30°C): 4.8 VDC to 5.2 VDC at 1 A.

LOAD REGULATION: Within 100 mV with a 1 A load change.

LINE REGULATION (+20°C to +30°C): Within 50 mV for a ±10% line voltage change.

RIPPLE AND NOISE (1 A): 5 mV P-P or less. 100 μV RMS or less.

STABILITY: 0.5% or less drift.

OVERLOAD PROTECTION: Automatic current limiting and over-temperature shutdown.

PS 501-1

Same as PS 501, except output voltage is selectable within 0.5% at a minimum resolution of 1.6 mV by a 10-turn potentiometer with a 3-digit, in-line dial and range pushbutton.

PS 501 -2

Same as PS 501, except that the output voltage or current is read out on a 2% full-scale accurate front-panel meter.

[1] For additional information refer to National Semiconductor Corp. specifications for the LM309K 5 V Regulator Integrated Circuit.

REPACKAGING FOR SHIPMENT

If the Tektronix instrument is to be shipped to a Tektronix Service Center for service or repair, attach a tag showing: owner (with address) and the name of an individual at your firm that can be contacted. Include complete instrument serial number and a description of the service required.

Save and re-use the package in which your instrument was shipped. If the original packaging is unfit for use or not available, repackage the instrument as follows:

Surround the instrument with polyethylene sheeting to protect the finish of the instrument. Obtain a carton of corrugated cardboard of the correct carton strength and having inside dimensions of no less than six inches more than the instrument dimensions. Cushion the instrument by tightly packing three inches of dunnage or urethane foam between carton and instrument, on all sides. Seal carton with shipping tape or industrial stapler.

The carton test strength for your instrument is 200 pounds.

THEORY OF OPERATION

Introduction

This section contains a discussion of the operating modes of the PS 501 and PS 501 -1 Power Supplies. Circuit operation for obtaining the constant voltage and current limited output with automatic crossover, line and load regulation and 5 V ground-referenced output is described. Refer to the schematic diagram on the foldout page at the rear of this manual while reading this section.

Automatic Crossover

The PS 501 (-1) employs two operational amplifiers; U40 and U70. Amplifier U40 controls output voltage while U70 controls output current. For any value of load resistance the power supply acts either as a constant-voltage source or a current source — but never both. Automatic crossover is accomplished by combining the outputs from pin 6 of U40 and U70 in a negative-true, "OR" gate configuration (see Fig. 2-1). The amplifier with the lower output voltage at pin 6 will cause its associated diode (CR40 or CR71) to conduct, which eventually reverse biases the other diode. A portion of the current available from R51 is then diverted away from the base of Q50 and to the amplifier with the lower output. The remainder of the current drives the base of Q50 which, in turn, controls the current through the series-pass transistor to the load.

Constant Voltage/Current Limited Output

Output current or voltage varies when an imbalance occurs between the comparison voltage at pin 2 and 3 of either U40 or U70. This imbalance is caused by a change in the load resistance or in the reference voltage selected by R65, the front-panel CURRENT LIMIT potentiometer, or by R42, the front-panel VOLTS potentiometer. Fig. 2-2 illustrates the output characteristics of the power supply with various current and voltage settings and load resistances.

Voltage and current references are generated from two constant-current sources. Q10 and Zener diode VR10

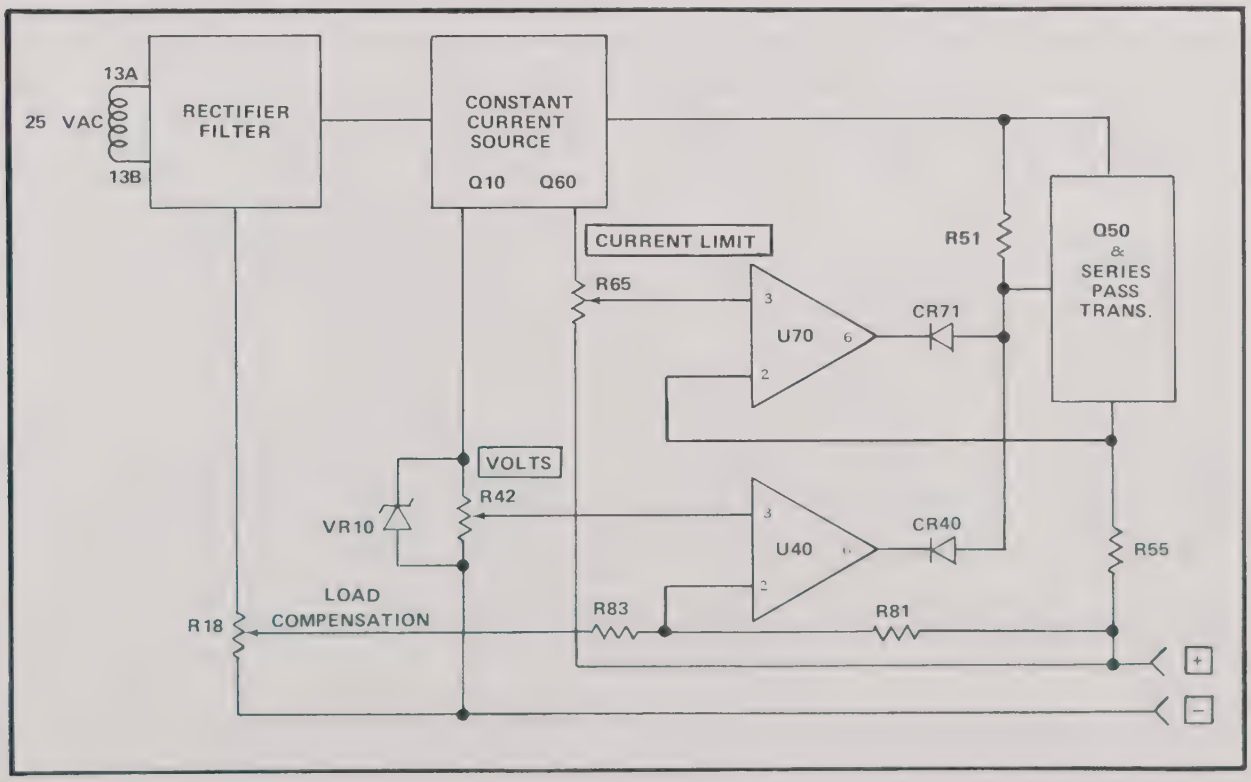


Fig. 2-1. Simplified diagram of PS 501 (-1).

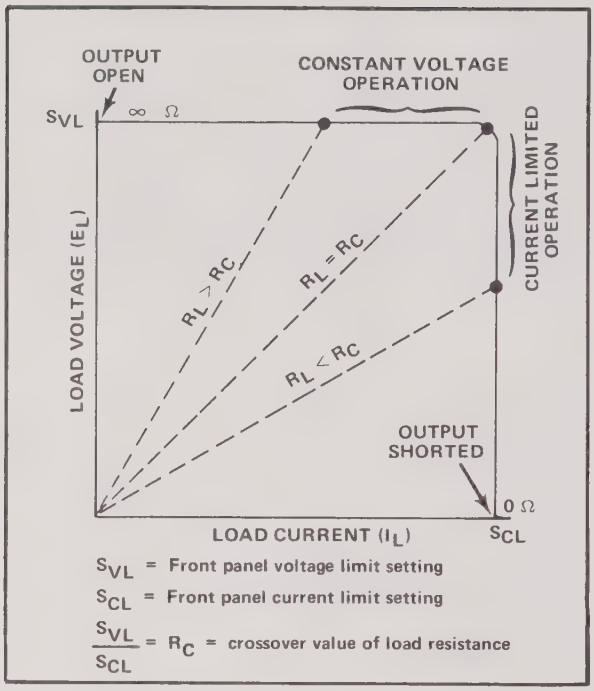


Fig. 2-2. Operating characteristics with varying currents, voltages, and loads.

provide constant-current to VOLTS potentiometer R42 which then establish the non-inverting reference input to pin 3 of U40, the voltage-controlling amplifier. The collector of Q60 provides constant current to CURRENT LIMIT potentiometer R65 which establishes the non-inverting reference input to pin 3 of U70, the current-controlling amplifier.

With no load connected to the output terminals, $R_L = \infty$, $I_L = 0$ and $E_L = S_{VL}$, the front-panel voltage limit setting (see Fig. 2-2). When a load is connected to the power supply output terminals, output current increases which results in an increase in the voltage drop across current-sensing resistor R55. This drop provides the inverting input to pin 2 of U70. If the voltage at pin 2 exceeds the reference voltage at pin 3, then the voltage at pin 6 drops to a level where CR71 turns on, and CR40 is reverse biased; thus, control crosses over to U70, the current-controlling amplifier. U70 holds the voltage at pin 2 to that set at pin 3 by R65, the CURRENT LIMIT potentiometer (S_{CL}). The supply is now in current-limited operation (see Fig. 2-2).

Load Regulation

With no load connected to the output terminals of the PS 501 (-1), all of the output current flows through feedback divider R81/R83 (approximately 1 mA/V) and back to the minus side of C10. When a load is connected to the output terminals, output current must increase to maintain a constant output voltage.

An increase in output current cannot occur unless the drive to the base of Q50 and the series pass transistor is also increased. The increase in the voltage differential between pin 2 and 3 of U40 necessary to drive Q50 and the series pass transistor (refer to the discussion of constant voltage/current-limited operation) is obtained by applying a small negative voltage developed by the load current through R15 in parallel with Load Compensation resistor R18. By adjusting R18, the proper feedback is developed through divider R81/R83 to increase the output current and subsequently hold the output voltage constant regardless of the load.

Line Regulation

Resistors R13 and R14 enhance the stability of zener reference VR10 by establishing the zener current at approximately 7.5 mA. R12 stabilizes the zener current with respect to the line voltage. VR11 and R11 provide a reference voltage to constant current source Q10.

If the line voltage varies, a corresponding voltage change occurs across C10. This voltage change would normally affect the collector current through Q10. However, the self-bias generated across R13 and R14 partially stabilizes the collector current; further stabilization occurs when the current through R12 is added to the self-bias from R13 and R14. The nearly constant voltage drop scross R14 provides bias for constant current source Q60, while CR66 provides temperature compensation.

+5 V Ground-Referenced Supply

The Power Module supplies +5 V through pins 2A and 3A on the plug-in rear connector to pin 1 and 3 of integrated circuit U2. U2 provides a regulated +5 V output limited at 1A from pin 2 and 3 to output connectors J5 and J6 on the front panel.

SERVICING INFORMATION

Introduction

This section of the manual contains information necessary to service the PS 501(-1). Calibration procedures are provided with supporting illustrations that show internal adjustment locations and describe front-panel control functions (see foldout page). Also included is the electrical parts list with an illustration (see foldout page) that shows the physical location of components on the etched circuit board with an alpha-numeric grid-overlay system keyed to the electrical parts list (see Grid Loc column). A schematic diagram is located opposite both the electrical parts list and the circuit board illustration to further facilitate the location of components. Table 3-1 on the first foldout page lists the rear connector pin assignments.

Mechanical parts are listed at the rear of this section with an exploded view of the instrument. A list of standard accessories and a carton assembly drawing are on the back of the exploded view foldout page.

Maintenance

Detailed system maintenance procedures are provided in the Power Module instruction manual, i.e., preventive maintenance, troubleshooting aids, part removal and replacement procedures, parts ordering information, etc.

Service Available

TEKTRONIX, Inc. provides complete instrument repair and calibration at local Field Service centers and at the Factory Service Center. Contact your local TEKTRONIX Field Office or representative for further information.

CALIBRATION

Introduction

The following calibration procedure is intended to return the circuits of the PS 501(-1) within their designed operating capabilities. Calibration is generally required after a repair has been made, or after long time intervals in which normal aging of components may affect instrument accuracy. Verify instrument operation by performing the procedures described under Preparation in Section 1.

Test Equipment Required

The following test equipment and accessories, or the equivalent, are required for complete calibration of the PS 501(-1). Specifications given for the test equipment are the minimum necessary for accurate calibration. Therefore, some of the specifications listed may be less rigorous than the actual performance capabilities of the test equipment. All test equipment is assumed to be correctly calibrated and operating within the listed specifications.

Calibration Equipment Alternatives

If other test equipment is substituted, control settings or set-up may need altering to meet the requirements of the equipment used. Detailed operating instructions for the test equipment are not given in this procedure. Refer to the instruction manual for the test equipment if more information is needed.

Test Instruments

1. 5100-series Oscilloscope System. For this procedure, a 5103N/D10 with a 5B10N time-base and 5A15N amplifier plug-in is used.

2. Differential DC voltmeter. 10 V to 20 V within 0.1%. For example, John Fluke Model 825A.

3. TM 500 Series Power Module.

Accessories

1. 1X passive probe. TEKTRONIX P6060 Passive Probe.

2. Plug-in extension for the TM 500 Series Power Modules. TEKTRONIX Calibration Fixture 067-0645-01 (not mandatory for this procedure).

3. Load resistor. 50 Ω, 8 W, 5%.

Preliminary Considerations

Read the Operating Considerations in Section 1 before calibrating the PS 501(-1).

This instrument should be calibrated at an ambient temperature between +20°C and +30°C (+68°F and +86°F) for best accuracy.

Do not preset internal controls unless they are known to be significantly out of adjustment, or unless repairs have been made in the circuit. In these instances, the internal adjustments can be set to midrange.

Preparation

1. Remove the cover from the left side of the PS 501(-1) and, if necessary, blow off accumulated dust with low-pressure compressed air.

2. Insert the PS 501(-1) into the left compartment if a multi-plug-in Power Module is used. (Note: It may be convenient to use the plug-in extender, part no. 067-0645-01, to make internal adjustments without inserting the PS 501(-1) into the Power Module. However, it is not mandatory for this procedure.)

3. If the plug-in extender is not used, remove the Power Module cabinet cover to gain access to the PS 501(-1) internal adjustments.

4. Apply power to the Power Module and press the OUTPUT button on the PS 501(-1).

5. Refer to the first foldout page in this section for a description of front-panel controls and internal adjustment locations.

ADJUSTMENT PROCEDURE

NOTE

If a malfunction is detected during calibration, refer to system maintenance in the Power Module instruction manual for troubleshooting techniques, parts removal and replacement procedures, parts ordering information, etc.

Zero Volts (R38)

1. Connect the Differential Voltmeter to the PS 501(-1) output terminals.

2. Set the front-panel VOLTS control for 0 volts (fully ccw for the PS 501 and 0000 for the PS 501-1).

3. Adjust R38 (Zero Volts) for 00.000 volts output.

4. Remove the Differential Voltmeter.

Load Compensation (R18)

1. Connect the 50 Ω, 8 W Load Resistor across the PS 501(-1) output terminals.

2. AC couple the Test Oscilloscope to the PS 501(-1) output terminals and turn the front-panel VOLTS and CURRENT LIMIT controls fully cw. Note the displayed level on the Test Oscilloscope. Remove the Load Resistor and note the shift in the displayed level.

3. Adjust R18 (Load Compensation) for no shift in displayed level as the Load Resistor is disconnected and connected. Remove the test equipment.

WARNING

If the Load Resistor is left connected for an extended period it may become hot. If necessary, replace with a higher wattage resistor.

PS 501-1 Only

+10 Volt and +20 Volt Output (R45 and R42B)

1. Connect the Differential Voltmeter to the PS 501-1 output terminals.

2. Set the front-panel VOLTS dial to exactly 999+1 (000) and press the Range pushbutton.

3. Adjust R42B (+20 Volts) for 20.000 volts on the Differential Voltmeter and release the Range pushbutton. Repeat steps 2 and 3.

4. Adjust R45 (+10 Volts) for 10.000 volts on the Differential Voltmeter.

5. If necessary, repeat steps 3 and 4.

This completes the PS 501(-1) adjustment.

REPLACEABLE ELECTRICAL PARTS

PARTS ORDERING INFORMATION

Replacement parts are available from or through your local Tektronix, Inc. Field Office or representative.

Changes to Tektronix instruments are sometimes made to accommodate improved components as they become available, and to give you the benefit of the latest circuit improvements developed in our engineering department. It is therefore important, when ordering parts, to include the following information in your order: Part number, instrument type or number, serial number, and modification number if applicable.

If a part you have ordered has been replaced with a new or improved part, your local Tektronix, Inc. Field Office or representative will contact you concerning any change in part number.

Change information, if any, is located at the rear of this manual.

SPECIAL NOTES AND SYMBOLS

X000	Part first added at this serial number
00X	Part removed after this serial number

ITEM NAME

In the Parts List, an Item Name is separated from the description by a colon (:). Because of space limitations, an Item Name may sometimes appear as incomplete. For further Item Name identification, the U.S. Federal Cataloging Handbook H6-1 can be utilized where possible.

ABBREVIATIONS

ACTR	ACTUATOR	PLSTC	PLASTIC
ASSY	ASSEMBLY	QTZ	QUARTZ
CAP	CAPACITOR	RECP	RECEPTACLE
CER	CERAMIC	RES	RESISTOR
CKT	CIRCUIT	RF	RADIO FREQUENCY
COMP	COMPOSITION	SEL	SELECTED
CONN	CONNECTOR	SEMICOND	SEMICONDUCTOR
ELCTLT	ELECTROLYTIC	SENS	SENSITIVE
ELEC	ELECTRICAL	VAR	VARIABLE
INCAND	INCANDESCENT	WW	WIREWOUND
LED	LIGHT EMITTING DIODE	XFMR	TRANSFORMER
NONWIR	NON WIREWOUND	XTAL	CRYSTAL

CROSS INDEX—MFR. CODE NUMBER TO MANUFACTURER

Mfr. Code	Manufacturer	Address	City, State, Zip
01121	ALLEN-BRADLEY COMPANY	1201 2ND STREET SOUTH	MILWAUKEE, WI 53204
01295	TEXAS INSTRUMENTS, INC., SEMICONDUCTOR GROUP	P O BOX 5012, 13500 N CENTRAL EXPRESSWAY	DALLAS, TX 75222
04713	MOTOROLA, INC., SEMICONDUCTOR PRODUCTS DIV.	5005 E. MCDOWELL RD.	PHOENIX, AZ 85008
07910	TELEDYNE SEMICONDUCTOR	12515 CHADRON AVE.	HAWTHORNE, CA 90250
12040	NATIONAL SEMICONDUCTOR CORP.	COMMERCE DRIVE	DANBURY, CT 06810
28480	HEWLETT-PACKARD CO., CORPORATE HQ.	1501 PAGE MILL RD.	PALO ALTO, CA 94304
32997	BOURNS, INC., TRIMPOT PRODUCTS DIV.	1200 COLUMBIA AVE.	RIVERSIDE, CA 92507
33005	JEWELL ELECTRICAL INSTRUMENTS, INC.	GRENIER FIELD	MANCHESTER, NH 03105
44655	OHMITE MFG. CO.	3601 W. HOWARD ST.	SKOKIE, IL 60076
50579	LITRONIX INC.	19000 HOMESTEAD RD.	CUPERTINO, CA 95014
56289	SPRAGUE ELECTRIC CO.		NORTH ADAMS, MA 01247
58474	SUPERIOR ELECTRIC CO., THE	383 MIDDLE ST.	BRISTOL, CT 06010
71450	CTS CORP.	1142 W. BEARDSLEY AVE.	ELKHART, IN 46514
71744	CHICAGO MINIATURE LAMP WORKS	4433 RAVENSWOOD AVE.	CHICAGO, IL 60640
72982	ERIE TECHNOLOGICAL PRODUCTS, INC.	644 W. 12TH ST.	ERIE, PA 16512
80009	TEKTRONIX, INC.	P. O. BOX 500	BEAVERTON, OR 97005
87034	ILLUMINATED PRODUCTS INC.,OAK INDUSTRIES	207 S HELENA, PO BOX 4011	ANAHEIM, CA 92803
90201	MALLORY CAPACITOR CO., DIV. OF P. R. MALLORY CO., INC.	3029 E. WASHINGTON ST.	INDIANAPOLIS, IN 46206
91637	DALE ELECTRONICS, INC.	P. O. BOX 609	COLUMBUS, NB 68601

Ckt No.	Tektronix Part No.	Serial/Model No. Eff	Dscont	Name & Description	Mfr Code	Mfr Part Number
A1	670-2012-00			CKT CARD ASSY:MAIN(PS501 ONLY)	80009	670-2012-00
A1	670-2116-00	B010100	B051569	CKT CARD ASSY:MAIN(PS501-1 ONLY)	80009	670-2116-00
A1	670-2116-01	B051570		CKT CARD ASSY:MAIN(PS501-1 ONLY)	80009	670-2116-01
A1	670-2673-00	B010100	B041139	CKT CARD ASSY:MAIN(PS501-2 ONLY)	80009	670-2673-00
A1	670-2673-01	B041140		CKT CARD ASSY:MAIN(PS501-2 ONLY)	80009	670-2673-01
A2	670-2089-00			CKT CARD ASSY:SECONDARY(PS501-1 ONLY)	80009	670-2089-00
C2	283-0198-00			CAP.,FXD,CER DI:0.22UF,20%,50V	72982	8131N075 E224M
C3	290-0531-00			CAP.,FXD,ELCTLT:100UF,20%,10V	90201	TDC107M010WLC
C10	290-0520-00	B010100	B029999	CAP.,FXD,ELCTLT:4500PF,+100-0%,40V	56289	68D10474
C10	290-0509-00	B030000		CAP.,FXD,ELCTLT:3000UF,+100-10%,50V	56289	68D10454
C201	290-0324-00	B010100	B050409	CAP.,FXD,ELCTLT:750UF,+75-10%,40V	56289	D46454
C201	290-0509-00	B050410		CAP.,FXD,ELCTLT:3000UF,+100-10%,50V	56289	68D10454
C202	290-0324-00	B010100	B050529	CAP.,FXD,ELCTLT:750UF,+75-10%,40V	56289	D46454
C202	290-0509-00	B050530		CAP.,FXD,ELCTLT:3000UF,+100-10%,50V	56289	68D10454
C35	290-0524-00			CAP.,FXD,ELCTLT:4.7UF,20%,10V	90201	TDC475M010EL
C55	290-0519-00			CAP.,FXD,ELCTLT:100UF,20%,20V	56289	196D107X0020MA3
C811,2	290-0517-00	B010100	B010201	CAP.,FXD,ELCTLT:6.8UF,20%,35V	56289	196D685X0035KA1
C811,2	283-0111-00	B010202		CAP.,FXD,CER DI:0.1UF,20%,50V	72982	8131N075651104M
C813	283-0111-00			CAP.,FXD,CER DI:0.1UF,20%,50V	72982	8131N075651104M
CR10	152-0488-00			SEMICOND DEVICE:SILICON,200V,1500MA	80009	152-0488-00
CR20	152-0488-00			SEMICOND DEVICE:SILICON,200V,1500MA	80009	152-0488-00
CR40	152-0141-02			SEMICOND DEVICE:SILICON,30V,150MA	07910	1N4152
CR55	152-0066-00			SEMICOND DEVICE:SILICON,400V,750MA	80009	152-0066-00
CR66	152-0141-02			SEMICOND DEVICE:SILICON,30V,150MA	07910	1N4152
CR70	150-1001-01	B010100	B029999	LAMP,LED:RED,2V,100MA	50579	RL2
CR70	150-1001-00	B030000		LAMP,LED:RED,2V,100MA	28480	5082-4403
CR71	152-0141-02			SEMICOND DEVICE:SILICON,30V,150MA	07910	1N4152
CR74	152-0141-02			SEMICOND DEVICE:SILICON,30V,150MA	07910	1N4152
DS702	150-0107-00	B010100	B051569	LAMP,INCAND:12V,0.04A,T-1	87034	227AS25
DS702	150-0109-00	B051570		LAMP,INCAND:18V,26MA	71744	CM7220
DS703	150-0107-00	B010100	B041139	LAMP,INCAND:12V,0.04A,T-1	87034	227AS25
DS703	150-0109-00	B041140		LAMP,INCAND:18V,26MA	71744	CM7220
J5	129-0064-01			POST,BDG,ELEC:RED,5-WAY MINIATURE	58474	BB10167G2BX
J6	129-0064-02			POST,BDG,ELEC:WHITE,5-WAY,MINIATURE	58474	DF21WTC
J50	129-0064-01			POST,BDG,ELEC:RED,5-WAY MINIATURE	58474	BB10167G2BX
J52	129-0064-00			POST,BDG,ELEC:CHARCOAL,5-WAY MINIATURE	58474	BINP BB10167G13T
M553	149-0036-00			METER,ARBITRARY:0-1 DCMA	33005	MODEL 81T
Q10	151-0188-00			TRANSISTOR:SILICON,PNP	01295	2N3906
Q50	151-0190-00			TRANSISTOR:SILICON,NPN	80009	151-0190-00
Q60	151-0188-00			TRANSISTOR:SILICON,PNP	01295	2N3906
R3	315-0201-00			RES.,FXD,CMPSN:200 OHM,5%,0.25W	01121	CB2015
R11	315-0472-00			RES.,FXD,CMPSN:4.7K OHM,5%,0.25W	01121	CB4725
R12	315-0823-00			RES.,FXD,CMPSN:82K OHM,5%,0.25W	01121	CB8235
R13	315-0102-00			RES.,FXD,CMPSN:1K OHM,5%,0.25W	01121	CB1025
R14	315-0820-00			RES.,FXD,CMPSN:82 OHM,5%,0.25W	01121	CB8205
R18	311-1120-00			RES.,VAR,NONWIR:100 OHM,30%,0.25W	71450	201-YA5531
R19	301-0471-00			RES.,FXD,CMPSN:470 OHM,5%,0.50W	01121	EB4715
R26	303-0751-00			RES.,FXD,CMPSN:750 OHM,5%,1W	01121	GB7515
R35	315-0103-00			RES.,FXD,CMPSN:10K OHM,5%,0.25W	01121	CB1035
R38	311-1363-00			RES.,VAR,NONWIR:50K OHM,30%,0.25W	71450	21-YA5555

[1] PS501 only.
[2] PS501-1 only.
[3] PS501-2 only.

Ckt No.	Tektronix Part No.	Serial/Model No. Eff	Dscont	Name & Description	Mfr Code	Mfr Part Number
R39	315-0474-00			RES.,FXD,CMPSN:470K OHM,5%,0.25W	01121	CB4745
R41	315-0103-00			RES.,FXD,CMPSN:10K OHM,5%,0.25W	01121	CB1035
R42A[1,2]						
R42B	311-1343-00			RES.,VAR,NONWIR:2K OHM X 50 OHM,20%,0.50W	01121	10M791
R42A[3]						
R42B[3]	311-1120-00			RES.,VAR,NONWIR:100 OHM,30%,0.25W	71450	201-YA5531
R44[3]	321-0286-00			RES.,FXD,FILM:9.31K OHM,1%,0.125W	91637	MFF1816G93100F
R45[3]	311-1264-00			RES.,VAR,NONWIR:1.5K OHM,10%,0.50W	32997	3329P-L58-152
R51	301-0302-00			RES.,FXD,CMPSN:3K OHM,5%,0.50W	01121	EB3025
R52	315-0510-00			RES.,FXD,CMPSN:51 OHM,5%,0.25W	01121	CB5105
R53	315-0301-00			RES.,FXD,CMPSN:300 OHM,5%,0.25W	01121	CB3015
R54	315-0512-00			RES.,FXD,CMPSN:5.1K OHM,5%,0.25W	01121	CB5125
R55	308-0240-00			RES.,FXD,WW:2 OHM,5%,3W	44655	242EX2R000JQ18
R56[2]	308-0751-00			RES.,FXD,WW:0.175 OHM,5%,1W	80009	308-0751-00
R57[2]	321-0318-00			RES.,FXD,FILM:20K OHM,1%,0.125W	91637	MFF1816G20001F
R61	315-0471-00			RES.,FXD,CMPSN:470 OHM,5%,0.25W	01121	CB4715
R63	315-0154-00			RES.,FXD,CMPSN:150K OHM,5%,0.25W	01121	CB1545
R65[1,3]	311-1311-00	B010100	B019999	RES.,VAR,NONWIR:1K OHM,20%,1W	01121	10M155A
R65[1,3]	311-1369-00	B020000		RES.,VAR,NONWIR:1K OHM,20%,1W	01121	12M887
R65[2]	311-1369-00			RES.,VAR,NONWIR:1K OHM,20%,1W	01121	12M887
R68	315-0104-00			RES.,FXD,CMPSN:100K OHM,5%,0.25W	01121	CB1045
R74	315-0511-00			RES.,FXD,CMPSN:510 OHM,5%,0.25W	01121	CB5115
R76[3]	315-0122-00	B010100	B051569	RES.,FXD,CMPSN:1.2K OHM,5%,0.25W	01121	CB1225
R76[3]	301-0122-00	B051570		RES.,FXD,CMPSN:1.2K OHM,5%,0.50W	01121	EB1225
R76[2]	315-0122-00	B010100	B041139	RES.,FXD,CMPSN:1.2K OHM,5%,0.25W	01121	CB1225
R76[2]	301-0122-00	B041140		RES.,FXD,CMPSN:1.2K OHM,5%,0.50W	01121	EB1225
R81	321-0201-00			RES.,FXD,FILM:1.21K OHM,1%,0.125W	91637	MFF1816G12100F
R83[1,2]	321-0166-00			RES.,FXD,FILM:523 OHM,1%,0.125W	91637	MFF1816G523R0F
R83[3]	321-0191-00			RES.,FXD,FILM:953 OHM,1%,0.125W	91637	MFF1816G953R0F
S10	260-1209-00			SWITCH,PUSH:4PDT	80009	260-1209-00
S42[3]	260-1209-00			SWITCH,PUSH:4PDT	80009	260-1209-00
S55[2]	260-1445-00			SWITCH,PUSH:	80009	260-1445-00
U2	156-0176-00			MICROCIRCUIT,LI:5V REGULATOR	12040	LM309K
U40[1]	156-0067-00	B010100	B010198	MICROCIRCUIT,LI:OPERATIONAL AMPLIFIER	80009	156-0067-00
U40[1]	156-0067-06	B010199		MICROCIRCUIT,LI:OPERATIONAL AMPLIFIER	80009	156-0067-06
U40[3]	156-0067-06	B010100	B010137	MICROCIRCUIT,LI:OPERATIONAL AMPLIFIER	80009	156-0067-06
U40[3]	156-0067-06	B010138		MICROCIRCUIT,LI:OPERATIONAL AMPLIFIER	80009	156-0067-06
U40[2]	156-0067-06			MICROCIRCUIT,LI:OPERATIONAL AMPLIFIER	80009	156-0067-06
U70[1]	156-0067-00	B010100	B010198	MICROCIRCUIT,LI:OPERATIONAL AMPLIFIER	80009	156-0067-00
U70[1]	156-0067-06	B010199		MICROCIRCUIT,LI:OPERATIONAL AMPLIFIER	80009	156-0067-06
U70[3]	156-0067-00	B010100	B010137	MICROCIRCUIT,LI:OPERATIONAL AMPLIFIER	80009	156-0067-00
U70[3]	156-0067-06	B010138		MICROCIRCUIT,LI:OPERATIONAL AMPLIFIER	80009	156-0067-06
U70[2]	156-0067-06			MICROCIRCUIT,LI:OPERATIONAL AMPLIFIER	80009	156-0067-06
VR10[1,2]	152-0461-00			SEMICOND DEVICE:ZENER,0.4W,6.2V,5%	04713	1N821
VR10[3]	152-0212-00			SEMICOND DEVICE:ZENER,0.5W,9V,5%	04713	SZ50646
VR11	152-0212-00			SEMICOND DEVICE:ZENER,0.5W,9V,5%	04713	SZ50646
VR19	152-0304-00			SEMICOND DEVICE:ZENER,0.4W,20V,5%	04713	1N968B
VR26	152-0279-00			SEMICOND DEVICE:ZENER,0.4W,5.1V,5%	07910	CD332305

[1]PS501 only.
[2]PS501-2 only.
[3]PS501-1 only.

Symbols and Reference Designators

Electrical components shown on the diagrams are in the following units unless noted otherwise:

Capacitors = Values one or greater are in picofarads (pF).
Values less than one are in microfarads (μF).
Resistors = Ohms (Ω).

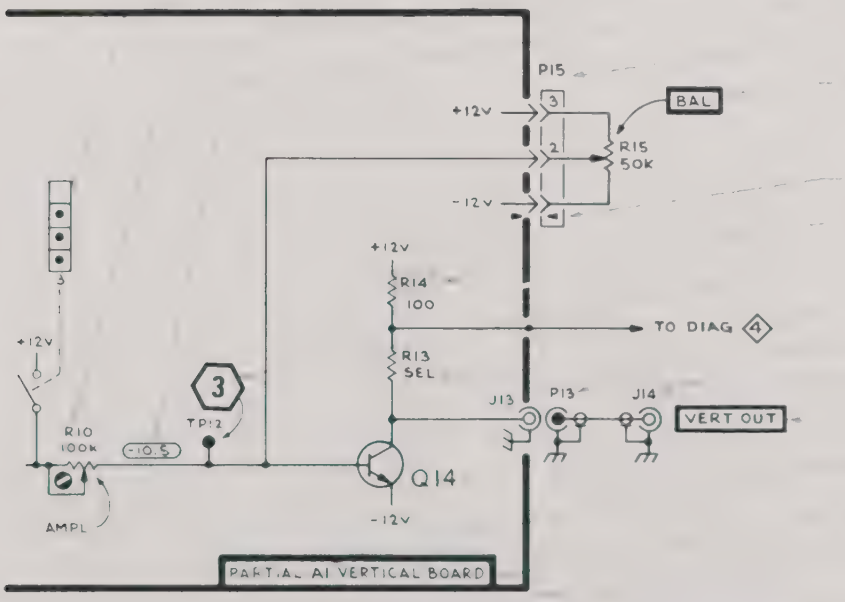
Symbols used on the diagrams are based on ANSI Standard Y32.2-1970.

Logic symbology is based on ANSI Y32.14-1973 in terms of positive logic. Logic symbols depict the logic function performed and may differ from the manufacturer's data.

The following prefix letters are used as reference designators to identify components or assemblies on the diagrams.

A	Assembly, separable or repairable (circuit board, etc.)	H	Heat dissipating device (heat sink, heat radiator, etc.)	RT	Thermistor
AT	Attenuator, fixed or variable	HR	Heater	S	Switch
B	Motor	HY	Hybrid circuit	T	Transformer
BT	Battery	J	Connector, stationary portion	TC	Thermocouple
C	Capacitor, fixed or variable	K	Relay	TP	Test point
CB	Circuit breaker	L	Inductor, fixed or variable	U	Assembly, inseparable or non-repairable (integrated circuit, etc.)
CR	Diode, signal or rectifier	LR	Inductor/resistor combination	V	Electron tube
DL	Delay line	M	Meter	VR	Voltage regulator (zener diode, etc.)
DS	Indicating device (lamp)	P	Connector, movable portion	Y	Crystal
E	Spark Gap	Q	Transistor or silicon-controlled rectifier	Z	Phase shifter
F	Fuse				
FL	Filter	R	Resistor, fixed or variable		

The following special symbols are used on the diagrams:



VERTICAL AMPLIFIER 2 CMD 1274

Cam Switch Closure Chart

Internal Screwdriver Adjustment

Test Voltage

Plug to E.C. Board

Panel Adjustment

Plug Index

Modified Component—See Parts Lis

Refer to Waveform

Refer to Diagram Number

SEL Value Selected at Factory

Coaxial Connector

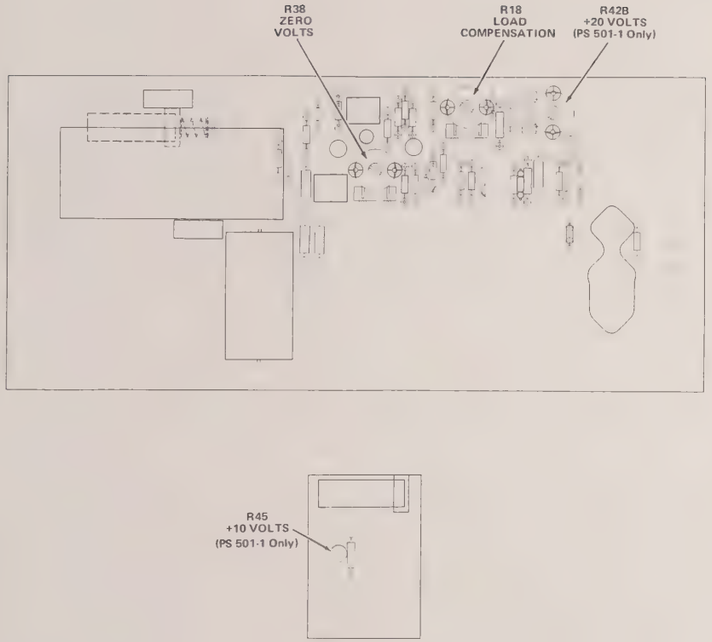
Panel Connector

Assembly Number

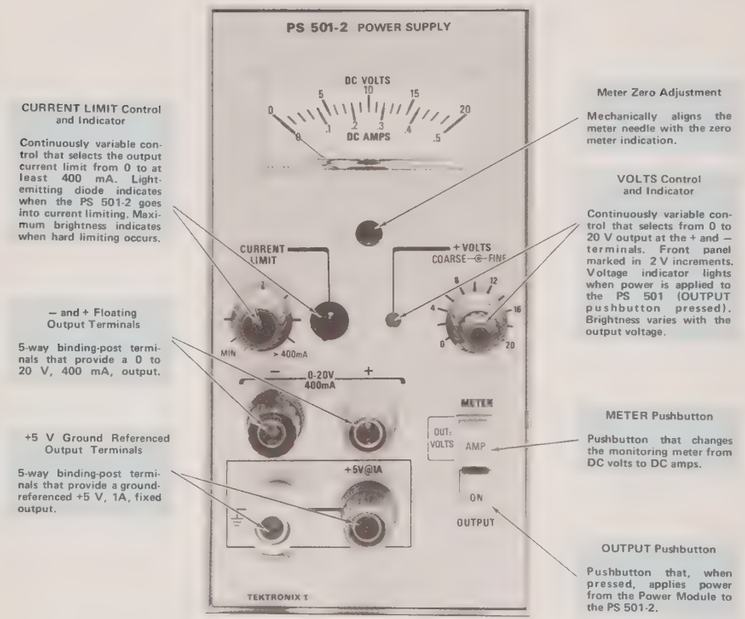
Board Name

Etched Circuit Board Outlined in Black
Schematic Name and Number

@



INTERNAL ADJUSTMENTS



CURRENT LIMIT Control and Indicator

Continuously variable control that selects the output current limit from 0 to at least 400 mA. Light-emitting diode indicates when the PS 501-2 goes into current limiting. Maximum brightness indicates when hard limiting occurs.

– and + Floating Output Terminals

5-way binding-post terminals that provide a 0 to 20 V, 400 mA, output.

+5 V Ground Referenced Output Terminals

5-way binding-post terminals that provide a ground-referenced +5 V, 1A, fixed output.

Meter Zero Adjustment

Mechanically aligns the meter needle with the zero meter indication.

VOLTS Control and Indicator

Continuously variable control that selects from 0 to 20 V output at the + and – terminals. Front panel marked in 2 V increments. Voltage indicator lights when power is applied to the PS 501 (OUTPUT pushbutton pressed). Brightness varies with the output voltage.

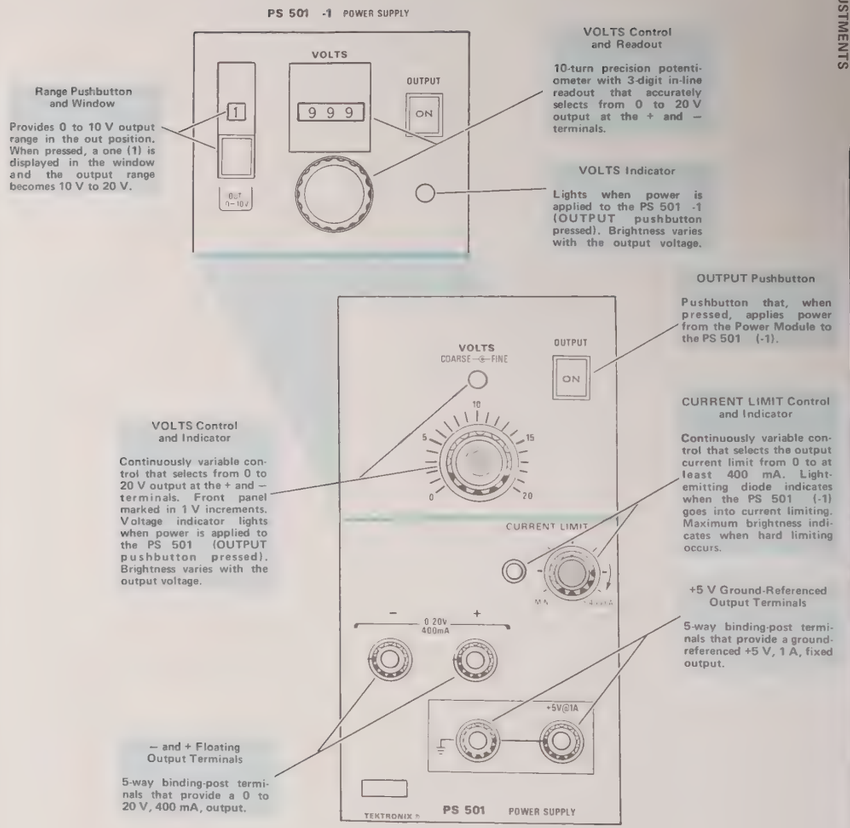
METER Pushbutton

Pushbutton that changes the monitoring meter from DC volts to DC amps.

OUTPUT Pushbutton

Pushbutton that, when pressed, applies power from the Power Module to the PS 501-2.

FRONT PANEL CONTROLS, INDICATORS AND CONNECTORS



Range Pushbutton and Window

Provides 0 to 10 V output range in the out position. When pressed, a one (1) is displayed in the window and the output range becomes 10 V to 20 V.

VOLTS Control and Readout

10-turn precision potentiometer with 3-digit in-line readout that accurately selects from 0 to 20 V output at the + and – terminals.

VOLTS Indicator

Lights when power is applied to the PS 501 -1 (OUTPUT pushbutton pressed). Brightness varies with the output voltage.

OUTPUT Pushbutton

Pushbutton that, when pressed, applies power from the Power Module to the PS 501 (-1).

VOLTS Control and Indicator

Continuously variable control that selects from 0 to 20 V output at the + and – terminals. Front panel marked in 1 V increments. Voltage indicator lights when power is applied to the PS 501 (OUTPUT pushbutton pressed). Brightness varies with the output voltage.

CURRENT LIMIT Control and Indicator

Continuously variable control that selects the output current limit from 0 to at least 400 mA. Light-emitting diode indicates when the PS 501 (-1) goes into current limiting. Maximum brightness indicates when hard limiting occurs.

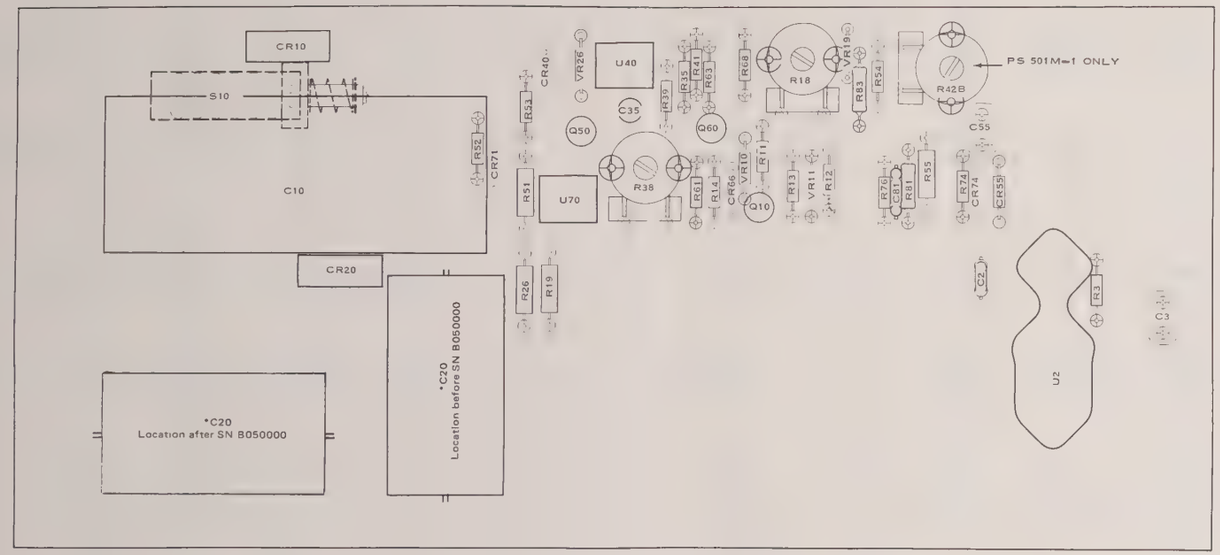
+5 V Ground-Referenced Output Terminals

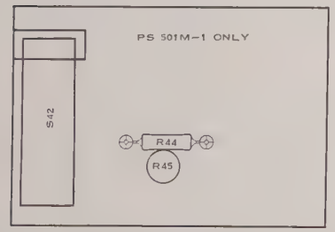
5-way binding-post terminals that provide a ground-referenced +5 V, 1 A, fixed output.

– and + Floating Output Terminals

5-way binding-post terminals that provide a 0 to 20 V, 400 mA, output.

FRONT PANEL CONTROLS, INDICATORS AND CONNECTORS





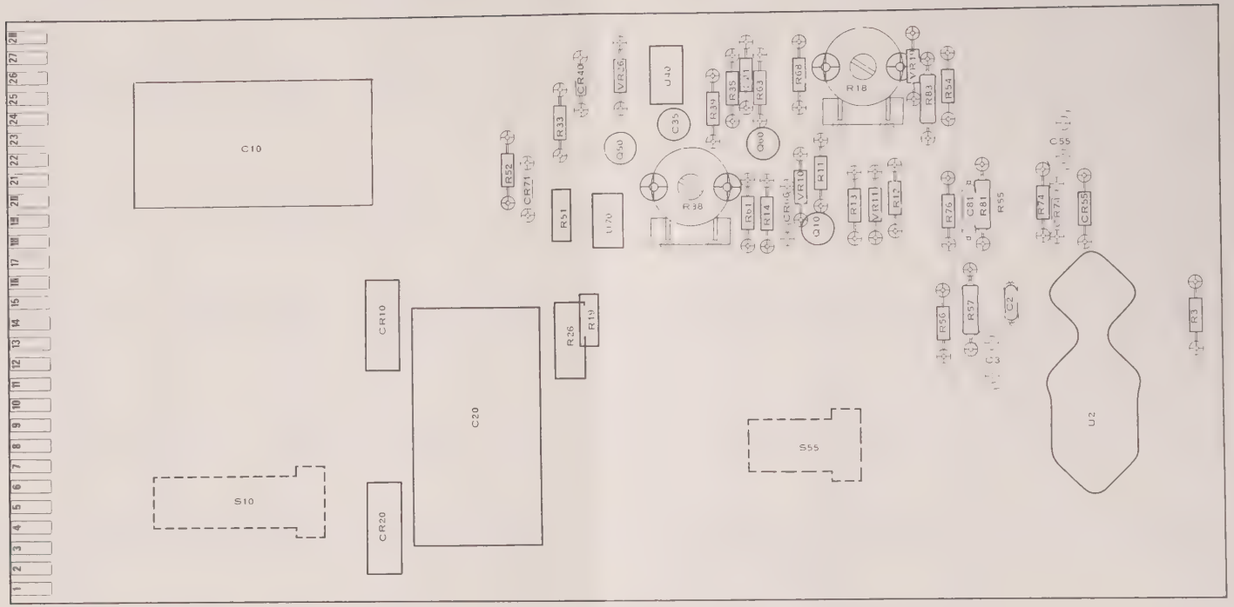
NOTE: COMPONENTS SHOWN WITH DASHED LINES ARE LOCATED ON BACK SIDE OF BOARD.

CKT NO	GRID LOC	CKT NO	GRID LOC	CKT NO	GRID LOC	CKT NO	GRID LOC	CKT NO	GRID LOC	CKT NO	GRID LOC	CKT NO	GRID LOC
C2	J4	CR10	C1	VR10	H3	Q10	H3	R3	K4	R41	G2	R68	H2
C3	K4	CR20	D4	VR11	H3	Q50	F2	R11	H2	R42B[1]	I2	R74	J3
C10	C3	CR40	F2	VR19	H2	Q60	G2	R12	H3	R44[1]	B8	R76	I3
C20	E5	CR55	J3	VR26	F2			R13	H3	R45[1]	B8	R81	I3
C35	F2	CR66	G3					R14	G3	R51	F3	R83	I2
C55	J2	CR71	E3					R18	H2	R52	E2	S10	C2
C81	I3	CR74	J3					R19	F4	R53	F2	S42[1]	A7
								R26	F4	R54	I2		
								R35	G2	R55	I3	U2	J4
								R38	G3	R61	G3	U40	F2
								R39	G2	R63	G2	U70	F3

[1] PS 501-1 Only.

PS 501/PS501-1 COMPONENT LOCATIONS

REV. C, NOV. 1974



NOTE. COMPONENTS SHOWN WITH DASHED LINES ARE LOCATED ON BACK SIDE OF BOARD.

CKT NO	GRID LOC	CKT NO	GRID LOC	CKT NO	GRID LOC	CKT NO	GRID LOC	CKT NO	GRID LOC	CKT NO	GRID LOC	CKT NO	GRID LOC
C2	J3	CR10	D4	VR10	H2	Q10	H3	R3	L4	R41	H1	R74	J3
C3	J4	CR20	D6	VR11	I3	Q50	G2	R11	H2	R51	F3	R76	I3
C10	C2	CR40	F1	VR19	I1	Q60	H2	R12	I3	R52	F2	R81	J3
C20	E5	CR55	K3	VR26	G1			R13	I3	R53	F2	R83	I2
C35	G2	CR66	H3					R14	H3	R54	I2		
C55	J2	CR71	F2					R18	I1	R55	J3	S10	C5
C81	J3	CR74	J3					R19	F4	R56	I4	S55	H5
								R26	F4	R57	J4		
								R35	H2	R61	H3	U2	K4
								R38	G3	R63	H2	U40	G1
								R39	G2	R68	H1	U70	F3

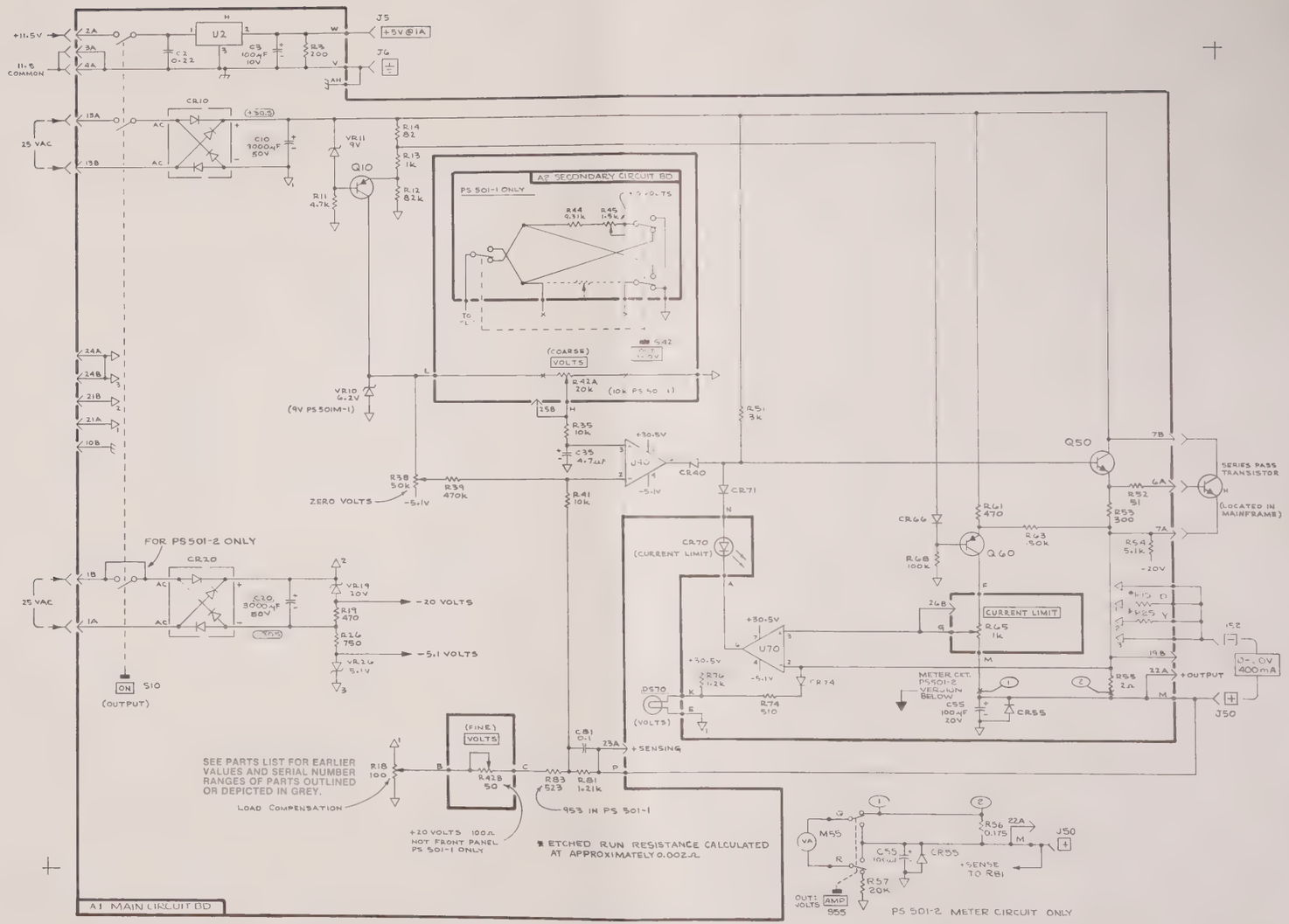
PS 501-2 COMPONENT LOCATIONS

TABLE 3-1

Rear Connector Pin Assignments

Pin No.	Left (A) [1]	Right (B) [1]
27 and 28	No Connection	No Connection
26	Not Used	Pin 3 of U70
25	Not Used	Pin 3 of U40
24	Reference Common	Reference Common
23	Sense	Not Used
22	Output	Not Used
21	Unregulated Common	Not Used
20	No Connection	No Connection
19	Not Used	Emitter of Series Pass Transistor and Pin 2 of U70
14 through 18	No Connection	No Connection
13	25 V RMS	25 V RMS
12	+30.5 V Unregulated	+30.5 V Unregulated
11	Base of Series Pass Transistor	Collector of Series Pass Transistor
10	Emitter of Series Pass Transistor	Transformer Shield
9	30.5 V Unregulated Common	30.5 V Unregulated Common
8	−30.5 V Unregulated	−30.5 V Unregulated
7	Emitter of Series Pass Transistor	Collector of Series Pass Transistor
6	Base of Series Pass Transistor	No Connection
5	17.5 V RMS	17.5 V RMS
3 and 4	9 V Unregulated Common	9 V Unregulated Common
2	+9 V Unregulated	+9 V Unregulated
1	25 V RMS	25 V RMS

[1] The left (A) and right (B) sides of the rear connector are as viewed from the front of the plug-in. Pins are numbered from the bottom of the connector.



PS 501/PS501-1/PS501-2 REV. E, JUN 1976

POWER SUPPLY

DEH 0572

REPLACEABLE MECHANICAL PARTS

PARTS ORDERING INFORMATION

Replacement parts are available from or through your local Tektronix, Inc. Field Office or representative.

Changes to Tektronix instruments are sometimes made to accommodate improved components as they become available, and to give you the benefit of the latest circuit improvements developed in our engineering department. It is therefore important, when ordering parts, to include the following information in your order: Part number, instrument type or number, serial number, and modification number if applicable.

If a part you have ordered has been replaced with a new or improved part, your local Tektronix, Inc. Field Office or representative will contact you concerning any change in part number.

Change information, if any, is located at the rear of this manual.

SPECIAL NOTES AND SYMBOLS

X000	Part first added at this serial number
00X	Part removed after this serial number

FIGURE AND INDEX NUMBERS

Items in this section are referenced by figure and index numbers to the illustrations.

INDENTATION SYSTEM

This mechanical parts list is indented to indicate item relationships. Following is an example of the indentation system used in the description column.

1 2 3 4 5 Name & Description

Assembly and/or Component
Attaching parts for Assembly and/or Component
- - - * - - -
Detail Part of Assembly and/or Component
Attaching parts for Detail Part
- - - * - - -
Parts of Detail Part
Attaching parts for Parts of Detail Part
- - - * - - -

Attaching Parts always appear in the same indentation as the item it mounts, while the detail parts are indented to the right. Indented items are part of, and included with, the next higher indentation. The separation symbol - - - * - - - indicates the end of attaching parts.

Attaching parts must be purchased separately, unless otherwise specified.

ITEM NAME

In the Parts List, an Item Name is separated from the description by a colon (:). Because of space limitations, an Item Name may sometimes appear as incomplete. For further Item Name identification, the U.S. Federal Cataloging Handbook H6-1 can be utilized where possible.

ABBREVIATIONS

	INCH
#	NUMBER SIZE
ACTR	ACTUATOR
ADPTR	ADAPTER
ALIGN	ALIGNMENT
AL	ALUMINUM
ASSEM	ASSEMBLED
ASSY	ASSEMBLY
ATTEN	ATTENUATOR
AWG	AMERICAN WIRE GAGE
BD	BOARD
BRKT	BRACKET
BRS	BRASS
BRZ	BRONZE
BSHG	BUSHING
CAB	CABINET
CAP	CAPACITOR
CER	CERAMIC
CHAS	CHASSIS
CKT	CIRCUIT
COMP	COMPOSITION
CONN	CONNECTOR
COV	COVER
CPLG	COUPLING
CRT	CATHODE RAY TUBE
DEG	DEGREE
DWR	DRAWER
ELCTRN	ELECTRON
ELEC	ELECTRICAL
ELCTLT	ELECTROLYTIC
ELEM	ELEMENT
EPL	ELECTRICAL PARTS LIST
EQPT	EQUIPMENT
EXT	EXTERNAL
FIL	FILLISTER HEAD
FLEX	FLEXIBLE
FLH	FLAT HEAD
FLTR	FILTER
FR	FRAME or FRONT
FSTNR	FASTENER
FT	FOOT
FXD	FIXED
GSKT	GASKET
HDL	HANDLE
HEX	HEXAGON
HEX HD	HEXAGONAL HEAD
HEX SOC	HEXAGONAL SOCKET
HLCPS	HELICAL COMPRESSION
HLEXT	HELICAL EXTENSION
HV	HIGH VOLTAGE
IC	INTEGRATED CIRCUIT
ID	INSIDE DIAMETER
IDENT	IDENTIFICATION
IMPLR	IMPELLER
IN	INCH
INCAND	INCANDESCENT
INSUL	INSULATOR
INTL	INTERNAL
LPHLDR	LAMPHOLDER
MACH	MACHINE
MECH	MECHANICAL
MTG	MOUNTING
NIP	NIPPLE
NON WIRE	NOT WIRE WOUND
OBD	ORDER BY DESCRIPTION
OD	OUTSIDE DIAMETER
OVH	OVAL HEAD
PH BRZ	PHOSPHOR BRONZE
PL	PLAIN or PLATE
PLSTC	PLASTIC
PN	PART NUMBER
PNH	PAN HEAD
PWR	POWER
RCPT	RECEPTACLE
RES	RESISTOR
RGD	RIGID
RLF	RELIEF
RTNR	RETAINER
SCH	SOCKET HEAD
SCOPE	OSCILLOSCOPE
SCR	SCREW
SE	SINGLE END
SECT	SECTION
SEMICOND	SEMICONDUCTOR
SHLD	SHIELD
SHLDR	SHOULDERED
SKT	SOCKET
SL	SLIDE
SLFLKG	SELF-LOCKING
SLVG	SLEEVING
SPR	SPRING
SQ	SQUARE
SST	STAINLESS STEEL
STL	STEEL
SW	SWITCH
T	TUBE
TERM	TERMINAL
THD	THREAD
THK	THICK
TNSN	TENSION
TPG	TAPPING
TRH	TRUSS HEAD
V	VOLTAGE
VAR	VARIABLE
W/	WITH
WSHR	WASHER
XFMR	TRANSFORMER
XSTR	TRANSISTOR

CROSS INDEX—MFR. CODE NUMBER TO MANUFACTURER

Mfr. Code	Manufacturer	Address	City, State, Zip
00779	AMP, INC.	P O BOX 3608	HARRISBURG, PA 17105
12327	FREEWAY WASHER AND STAMPING CO.	P. O. BOX 05206	CLEVELAND, OH 44105
22526	BERG ELECTRONICS, INC.	YOUK EXPRESSWAY	NEW CUMBERLAND, PA 17070
45722	USM CORP., PARKER-KALON FASTENER DIV.	1 PEERAY DRIVE	CLIFTON, NJ 07014
58474	SUPERIOR ELECTRIC CO., THE	383 MIDDLE ST.	BRISTOL, CT 06010
70276	ALLEN MFG. CO.	P. O. DRAWER 570	HARTFORD, CT 06101
73743	FISCHER SPECIAL MFG. CO.	446 MORGAN ST.	CINCINNATI, OH 45206
74445	HOLO-KROME CO.	31 BROOK ST. WEST	HARTFORD, CT 06110
78189	ILLINOIS TOOL WORKS, INC. SHAKEPROOF DIVISION	ST. CHARLES ROAD	ELGIN, IL 60126
79807	WROUGHT WASHER MFG. CO.	2100 S. O BAY ST.	MILWAUKEE, WI 53207
80009	TEKTRONIX, INC.	P. O. BOX 500	BEAVERTON, OR 97005
82647	TEXAS INSTRUMENTS, INC., CONTROL PRODUCTS DIV.	34 FOREST ST.	ATTLEBORO, MA 02703
83330	SMITH, HERMAN H., INC.	812 SNEDIKER AVE.	BROOKLYN, NY 11207
83385	CENTRAL SCREW CO.	2530 CRESCENT DR.	BROADVIEW, IL 60153
86445	PENN FIBRE AND SPECIALTY CO.	2032 E. WESTMORELAND ST.	PHILADELPHIA, PA 19134

Fig. & Index No.	Tektronix Part No.	Serial/Model No. Eff	Dscont	Qty	1 2 3 4 5	Name & Description	Mfr Code	Mfr Part Number
1-1	366-1422-01			1		KNOB:LATCH	80009	366-1422-01
						(ATTACHING PARTS)		
	214-1840-00			1		PIN,KNOB SECRG:0.094 OD X 0.120 INCH LONG	80009	214-1840-00
						- - - * - - -		
-2	366-1327-00[1]			1		KNOB:GRAY	80009	366-1327-00
	213-0153-00			1		. SETSCREW:5-40 X 0.125 INCH,HEX SOC STL	74445	OBD
-3	366-1283-00[1]			1		KNOB:GRAY	80009	366-1283-00
	213-0153-00			1		. SETSCREW:5-40 X 0.125 INCH,HEX SOC STL	74445	OBD
-4	366-0494-00			1		KNOB:GRAY	80009	366-0494-00
	213-0153-00			1		. SETSCREW:5-40 X 0.125 INCH,HEX SOC STL	74445	OBD
-5	366-1257-74			1		PUSH BUTTON:ON	80009	366-1257-74
-6	426-0681-00			1		FR,PUSH BUTTON:GRAY PLASTIC	80009	426-0681-00
-7	366-1402-40[2]			1		PUSH BUTTON:10-20	80009	366-1402-40
-8	337-1399-00[1,3]			2		SHLD,ELECTRICAL:SIDE	80009	337-1399-00
	337-1399-00[2]	B010100	B019999	2		SHLD,ELECTRICAL:SIDE	80009	337-1399-00
	337-1399-00[2]	B020000		1		SHLD,ELECTRICAL:SIDE	80009	337-1399-00
	337-1399-03[2]	B020000		1		SHIELD,ELEC:SIDE	80009	337-1399-03
-9	129-0064-01			2		POST,BDG,ELEC:RED,5-WAY MINIATURE	58474	BB10167G2BX
						(ATTACHING PARTS)		
-10	210-0457-00			1		NUT,PLAIN,EXT W:6-32 X 0.312 INCH,STL	83385	OBD
-11	358-0181-01			1		INSULATOR,BSHG:RED	58474	BB1066G2
						- - - * - - -		
-12	129-0064-00			1		POST,BDG,ELEC:CHARCOAL,5-WAY MINIATURE	58474	BINP BB10167G13T
						(ATTACHING PARTS)		
-13	210-0457-00			1		NUT,PLAIN,EXT W:6-32 X 0.312 INCH,STL	83385	OBD
-14	358-0181-00			1		INSULATOR,BSHG:CHARCOAL	58474	BB10166G13BX
						- - - * - - -		
-15	129-0064-02			1		POST,BDG,ELEC:WHITE,5-WAY,MINIATURE	58474	DF21WTC
-16	----- -----			1		. INSULATOR BSHG:WHITE		
						(ATTACHING PARTS)		
-17	210-0457-00			1		NUT,PLAIN,EXT W:6-32 X 0.312 INCH,STL	83385	OBD
						- - - * - - -		
-18	----- -----			1		RESISTOR,VAR:(SEE R65 EPL)		
						(ATTACHING PARTS)		
-19	210-0583-00			1		NUT,PLAIN,HEX.:0.25-32 X 0.312 INCH,BRS	73743	2X20224-402
-20	210-0940-00			1		WASHER,FLAT:0.25 ID X 0.375 INCH OD,STL	79807	OBD
	210-0046-00			1		WASHER,LOCK:INTL,0.26 ID X 0.40" OD,STL	78189	1214-05-00-0541C
						- - - * - - -		
-21	----- -----[1,3]			1		RESISTOR,VAR:(SEE R42A,R42B EPL)		
						(ATTACHING PARTS)		
-22	210-0583-00			1		NUT,PLAIN,HEX.:0.25-32 X 0.312 INCH,BRS	73743	2X20224-402
-23	210-0940-00			1		WASHER,FLAT:0.25 ID X 0.375 INCH OD,STL	79807	OBD
	210-0046-00			1		WASHER,LOCK:INTL,0.26 ID X 0.40" OD,STL	78189	1214-05-00-0541C
						- - - * - - -		
-24	----- -----			1		LAMP,LED:(SEE CR70 EPL)		
-25	333-1563-00[1]			1		PANEL,FRONT:	80009	333-1563-00
-26	333-1561-00[2]			1		PANEL,FRONT:	80009	333-1561-00
-27	200-0935-00			1		BASE,LAMPHOLDER:0.29 OD X 0.19 CASE	80009	200-0935-00
-28	378-0602-01			1		LENS,LIGHT:AMBER	80009	378-0602-01
-29	352-0157-00			1		LAMPHOLDER:WHITE PLASTIC	80009	352-0157-00
-30	214-1513-01			1		LCH,PLUG-IN RET:	80009	214-1513-01
						(ATTACHING PARTS)		
-31	213-0254-00			1		SCR,TPG,THD CTG:2-56X0.25"100 DEG,FLH STL	45722	OBD
						- - - * - - -		
-32	426-0941-00[2]			1		FRAME,INDICATOR:	80009	426-0941-00
-33	401-0189-00[2]			1		GEAR,SECTOR:19 TEETH,PLASTIC	80009	401-0189-00
-34	401-0190-00[2]			1		GEAR,SECTOR:7 TEETH,PLASTIC	80009	401-0190-00
-35	----- -----[2]			1		RESISTOR,VAR:(SEE R42 EPL)		
						(ATTACHING PARTS)		
-36	210-0807-00			1		WASHER,FLAT:0.310 ID X 0.630 OD	12327	OBD
						- - - * - - -		

[1]PS501 only.
[2]PS501-1 only.
[3]PS501-2 only.

Fig. & Index No.	Tektronix Part No.	Serial/Model No. Eff	Dscont	Qty	1 2 3 4 5	Name & Description	Mfr Code	Mfr Part Number
1-37	352-0338-00[1]			1		HOLDER,DIAL:	80009	352-0338-00
						(ATTACHING PARTS)		
-38	211-0101-00			2		SCREW,MACHINE:4-40 X 0.25" 100 DEG,FLH STL	83385	OBD
	210-0870-00			2		WASHER,FLAT:0.14 ID X 0.312 INCH OD STL	12327	OBD
						- - - * - - -		
-39	331-0310-00[1]			1		DIAL,CONTROL:10 TURNS,DIGITAL COUNTS		
-40	386-2348-00[1]			1		SUBPANEL,FRONT:	80009	386-2348-00
						(ATTACHING PARTS)		
	213-0229-00			4		SCR,TPG,THD FOR:6-20 X0.375"100 DEG,FLH STL	83385	OBD
						- - - * - - -		
-41	337-1637-00[1]			1		SHLD,ELECTRICAL:REAR SUBPANEL		
-42	384-1101-01[1]			1		EXTENSION SHAFT:4.13 INCH LONG	80009	384-1101-01
-43	384-1058-00			1		EXTENSION SHAFT:8.157 INCH LONG	80009	384-1058-00
-44	386-2528-00			1		SUBPANEL,FRONT:	80009	386-2528-00
						(ATTACHING PARTS)		
-45	213-0229-00			4		SCR,TPG,THD FOR:6-20 X 0.375 100 DEG,FLH STL	83385	OBD
						- - - * - - -		
-46	337-1638-00[2]			1		SHLD,ELECTRICAL:REAR SUBPANEL	80009	337-1638-00
-47	----- -----[2]			1		CKT CARD ASSY:MAIN(SEE A1 EPL)		
-48	136-0252-04	B010100	B050409	25		. CONTACT,ELEC:0.188 INCH LONG	22526	75060
	136-0252-04	B050410		9		. CONTACT,ELEC:0.188 INCH LONG	22526	75060
	136-0514-00	B050410		2		. SOCKET,PLUG-IN:MICROCIRCUIT,8 CONTACT	82647	C930802
-49	----- -----			1		. INTEGRATED CIRCUIT(SEE U2 EPL)		
						(ATTACHING PARTS)		
-50	211-0510-00	B010100	B019999	2		. SCREW,MACHINE:6-32 X 0.312 INCH,PNH STL	83385	OBD
	211-0511-00	B020000		2		. SCREW,MACHINE:6-32 X 0.50 INCH,PNH STL	83385	OBD
-51	214-1713-00			1		. HEAT SINK,ELEC:TRANSISTOR	80009	214-1713-00
						- - - * - - -		
-52	136-0384-00			2		. CONTACT,ELEC:FOR 0.04 DIAMETER PIN	00779	52120
-53	136-0361-00			1		. SOCKET,PLUG-IN:	80009	136-0361-00
-54	131-0847-00			2		. TERMINAL STUD:6-32 X 0.435 INCH LONG	80009	131-0847-00
-55	260-1209-00			1		. SWITCH,PUSH:4PDT	80009	260-1209-00
-56	361-0384-00	B010100	B019999	2		. SPACER,PB SW:0.133 INCH LONG	80009	361-0384-00
	361-0385-00	B020000		1		. SPACER,PB SW:0.164 INCH LONG	80009	361-0385-00
-57	----- -----			1		. CAPACITOR:(SEE C10 EPL)		
						(ATTACHING PARTS)		
-58	211-0534-00			2		. SCR,ASSEM,WSHR:6-32 X 0.312 INCH,PNH STL	83385	OBD
	210-0407-00			2		. NUT,PLAIN,HEX.:6-32 X 0.25 INCH,BRS	73743	3038-0228-402
-59	352-0322-00			1		. RETAINER,CAP:	80009	352-0322-00
						- - - * - - -		
						(ATTACHING PARTS FOR CKT CD ASSY)		
-60	213-0146-00			4		SCR,TPG,THD FOR:6-20 X 0.313 INCH,PNH STL	83385	OBD
						- - - * - - -		
-61	----- -----[1]			1		CKT CARD ASSY:MAIN(SEE A1 EPL)		
-62	136-0252-04	B010100	B050529	25		. CONTACT,ELEC:0.188 INCH LONG	22526	75060
	136-0252-04	B051530		9		. CONTACT,ELEC:0.188 INCH LONG	22526	75060
	136-0514-00	B050530		2		. SOCKET,PLUG-IN:MICROCIRCUIT,8 CONTACT	82647	C930802
-63	----- -----			1		. INTEGRATED CIRCUIT:(SEE U2 EPL)		
						(ATTACHING PARTS)		
-64	211-0510-00	B010100	B019999	2		. SCREW,MACHINE:6-32 X 0.312 INCH,PNH STL	83385	OBD
	211-0511-00	B020000		2		. SCREW,MACHINE:6-32 X 0.50 INCH,PNH STL	83385	OBD
-65	214-1713-00	B020000		1		. HEAT SINK,ELEC:TRANSISTOR	80009	214-1713-00
						- - - * - - -		
-66	136-0384-00			2		. CONTACT,ELEC:FOR 0.04 DIAMETER PIN	00779	52120
-67	136-0361-00			1		. SOCKET,PLUG-IN:	80009	136-0361-00
-68	131-0847-00			2		. TERMINAL STUD:6-32 X 0.435 INCH LONG	80009	131-0847-00
-69	260-1209-00			1		. SWITCH,PUSH:4PDT	80009	260-1209-00
-70	361-0384-00	B010100	B010257	2		. SPACER,PB SW:0.133 INCH LONG	80009	361-0384-00
	361-0385-00	B010258		2		. SPACER,PB SW:0.164 INCH LONG	80009	361-0385-00
-71	----- -----			1		. CAPACITOR:(SEE C10 EPL)		
						(ATTACHING PARTS)		
-72	211-0534-00			2		. SCR,ASSEM,WSHR:6-32 X 0.312 INCH,PNH STL	83385	OBD
	210-0407-00			2		. NUT,PLAIN,HEX.:6-32 X 0.25 INCH,BRS	73743	3038-0228-402
-73	352-0322-00			1		. RETAINER,CAP:	80009	352-0322-00
						(ATTACHING PARTS FOR CKT CD ASSY)		
-74	213-0146-00			4		SCR,TPG,THD FOR:6-20 X 0.313 INCH,PNH STL	83385	OBD
						- - - * - - -		

[1] PS501-1 only.
[2] PS501 only.

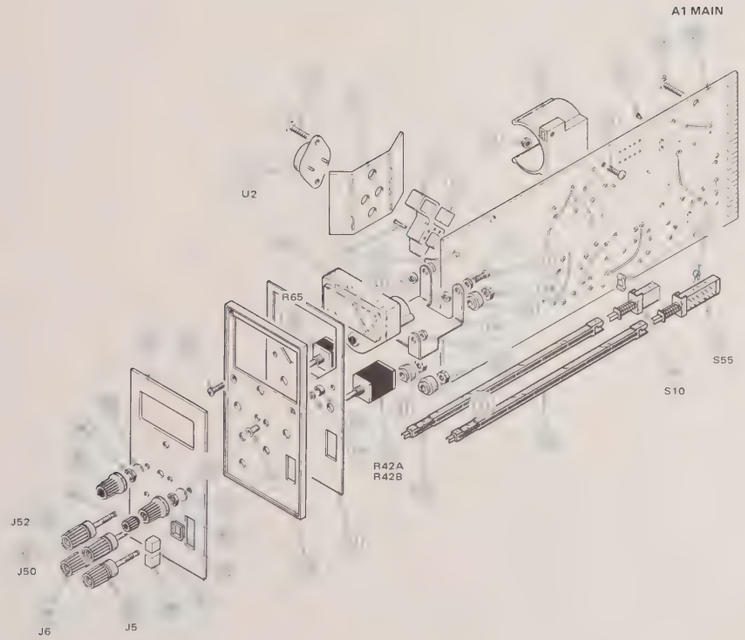
Fig. & Index No.	Tektronix Part No.	Serial/Model No. Eff	Dscont	Qty	1 2 3 4 5	Name & Description	Mfr Code	Mfr Part Number
1-75	129-0089-00[1]			2		SPACER,POST:6-32 X 0.25 X 0.83 INCH LONG	80009	129-0089-00
						(ATTACHING PARTS FOR EACH)		
-76	211-0504-00			1		SCREW,MACHINE:6-32 X 0.25 INCH,PNH STL	83385	OBD
						- - - * - - -		
-77	----- -----[1]			1		CKT CARD ASSY:SECONDARY(SEE A2 EPL)		
-78	260-1209-00			1		. SWITCH,PUSH:4PDT	80009	260-1209-00
-79	361-0383-00			2		. SPACER,PB SW:CHARCOAL,0.33 INCH LONG	80009	361-0383-00
						(ATTAHING PARTS FOR CKT CD ASSY)		
-80	211-0504-00			2		SCREW,MACHINE:6-32 X 0.25 INCH,PNH STL	83385	OBD
						- - - * - - -		
	386-3657-00[1]	B052160		2		SUPPORT,PLUG-IN:	80009	386-3657-00
	210-1270-00[1]	B052160		2		WASHER,FLAT:	80009	210-1270-00
-81	426-0724-00			1		FR SECT,PLUG-IN:BOTTOM	80009	426-0724-00
-82	426-0725-00			1		FR SECT,PLUG-IN:TOP	80009	426-0725-00
-83	179-1833-00[2]			1		WIRING HARNESS:MAIN	80009	179-1833-00
	179-1879-00[1]			1		WIRING HARNESS:	80009	179-1879-00
-84	366-1319-00[3]			1		KNOB:GRAY	80009	366-1319-00
	213-0140-00			1		. SETSCREW:2-56 X 0.94 INCH,HEX SOC STL	70276	OBD
-85	366-1077-00[3]			1		KNOB:GRAY	80009	366-1077-00
	213-0020-00			1		. SETSCREW:6-32 X 0.125 INCH,HEX.SOC STL	70276	OBD
-86	366-0494-00			1		KNOB:GRAY	80009	366-0494-00
	213-0153-00			1		. SETSCREW:5-40 X 0.125 INCH,HEX SOC STL	74445	OBD
-87	366-1257-74			1		PUSH BUTTON:	80009	366-1257-74
-88	366-1489-03[3]			1		PUSH BUTTON:	80009	366-1489-03
-89	426-0681-00			2		FR,PUSH BUTTON:GRAY PLASTIC	80009	426-0681-00
-90	129-0064-01			2		POST,BDG,ELEC:RED,5-WAY MINIATURE	58474	BB10167G2BX
						(ATTACHING PARTS FOR EACH)		
-91	210-0457-00			1		NUT,PLAIN,EXT W:6-32 X 0.312 INCH,STL	83385	OBD
-92	358-0181-01			1		INSULATOR,BSHG:RED	58474	BB1066G2
						- - - * - - -		
-93	129-0064-00			1		POST,BDG,ELEC:CHARCOAL,5-WAY MINIATURE	58474	BINP BB10167G13T
						(ATTACHING PARTS)		
-94	210-0457-00			1		NUT,PLAIN,EXT W:6-32 X 0.312 INCH,STL	83385	OBD
-95	358-0181-00			1		INSULATOR,BSHG:CHARCOAL	58474	BB10166G13BX
						- - - * - - -		
-96	129-0064-02			1		POST,BDG,ELEC:WHITE,5-WAY,MINIATURE	58474	DF21WTC
						(ATTACHING PARTS)		
-97	210-0457-00			1		NUT,PLAIN,EXT W:6-32 X 0.312 INCH,STL	83385	OBD
						- - - * - - -		
-98	----- -----			1		RESISTOR,VAR:(SEE R65 EPL)		
						(ATTACHING PARTS)		
-99	210-0583-00			1		NUT,PLAIN,HEX.:0.25-32 X 0.312 INCH,BRS	73743	2X20224-402
-100	210-0940-00			1		WASHER,FLAT:0.25 ID X 0.375 INCH OD,STL	79807	OBD
	210-0046-00			1		WASHER,LOCK:INTL,0.26 ID X 0.40" OD,STL	78189	1214-05-00-0541C
						- - - * - - -		
-101	----- -----[1,3]			1		RESISTOR,VAR:(SEE R42A,R42B EPL)		
						(ATTACHING PARTS)		
-102	210-0583-00			1		NUT,PLAIN,HEX.:0.25-32 X 0.312 INCH,BRS	73743	2X20224-402
-103	210-0940-00			1		WASHER,FLAT:0.25 ID X 0.375 INCH OD,STL	79807	OBD
	210-0046-00			1		WASHER,LOCK:INTL,0.26 ID X 0.40" OD,STL	78189	1214-05-00-0541C
						- - - * - - -		
-104	333-1714-00[3]			1		PANEL,FRONT:	80009	333-1714-00
-105	200-0935-00			1		BASE,LAMPHOLDER:0.29 OD X 0.19 CASE	80009	200-0935-00
-106	378-0602-01			1		LENS,LIGHT:AMBER	80009	378-0602-01
-107	352-0157-00			1		LAMPHOLDER:WHITE PLASTIC	80009	352-0157-00
-108	149-0036-00[3]			1		AMMETER:DC,0-1 MA,77 OHM,10%		
						(ATTACHING PARTS)		
-109	211-0101-00[3]			2		SCREW,MACHINE:4-40 X 0.25" 100 DEG,FLH STL	83385	OBD
-110	210-0406-00[3]			2		NUT,PLAIN,HEX.:4-40 X 0.188 INCH,BRS	73743	2X12161-402
-111	211-0097-00[3]			2		SCREW,MACHINE:4-40 X 0.312 INCH,PNH STL	83385	OBD
-112	210-0201-00[3]			1		TERMINAL,LUG:SE #4	78189	2104-04-00-2520N
-113	210-0906-00[3]			2		WASHER,NONMETAL:FIBER,0.125 ID X 0.203"OD	86445	OBD
-114	386-2527-00[3]			1		SUPPORT,METER:	80009	386-2527-00
-115	210-0849-00[3]			2		WSHR,SHOULDERED:0.11 ID X 0.188"OD,FIBER	83330	2151
						- - - * - - -		

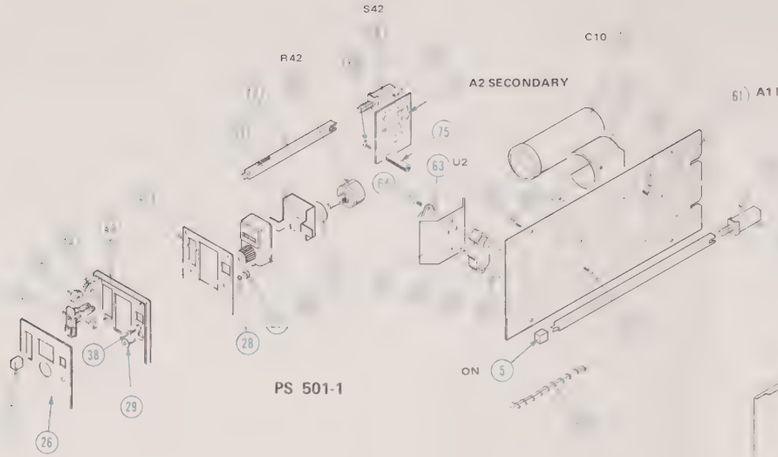
[1]PS501-1 only.
[2]PS501 only.
[3]PS501-2 only.

Fig. & Index No.	Tektronix Part No.	Serial/Model No. Eff	Dscont	Qty	1 2 3 4 5	Name & Description	Mfr Code	Mfr Part Number
1-116	386-2528-00 [1]			1		SUBPANEL,FRONT:	80009	386-2528-00
-117	337-1783-00 [1]			1		SHLD,ELECTRICAL:REAR SUBPANEL	80009	337-1783-00
-118	384-1058-00 [1]			1		EXTENSION SHAFT:8.157 INCH LONG	80009	384-1058-00
-119	384-1101-00 [1]			1		EXTENSION SHAFT:4.14 INCH LONG	80009	384-1101-00
-120	----- ----- [1]			1		CKT CARD ASSY:MAIN(SEE A1 EPL)		
-121	----- -----			1		. INTEGRATED CIRCUIT:(SEE U2 EPL)		
						(ATTACHING PARTS)		
-122	211-0510-00			2		. SCREW,MACHINE:6-32 X 0.312 INCH,PNH STL	83385	OBD
-123	214-1713-00			1		. HEAT SINK,ELEC:TRANSISTOR	80009	214-1713-00
						- - - * - - -		
-124	136-0384-00			2		. CONTACT,ELEC:FOR 0.04 DIAMETER PIN	00779	52120
-125	136-0361-00			1		. SOCKET,PLUG-IN:	80009	136-0361-00
-126	131-0847-00			2		. TERMINAL STUD:6-32 X 0.435 INCH LONG	80009	131-0847-00
-127	352-0322-00			1		. RETAINER,CAP:	80009	352-0322-00
						(ATTACHING PARTS)		
-128	211-0534-00			2		. SCR,ASSEM,WSHR:6-32 X 0.312 INCH,PNH STL	83385	OBD
-129	210-0407-00			2		. NUT,PLAIN,HEX.:6-32 X 0.25 INCH,BRS	73743	3038-0228-402
						- - - * - - -		
-130	260-1209-00			1		. SWITCH,PUSH:4PDT	80009	260-1209-00
-131	260-1445-00			1		. SWITCH,PUSH:	80009	260-1445-00
-132	361-0384-00			4		. SPACER,PB SW:0.133 INCH LONG	80009	361-0384-00
-133	136-0252-04	B010100	B040349	25		. CONTACT,ELEC:0.188 INCH LONG	22526	75060
	136-0252-04	B040350		9		. CONTACT,ELEC:0.188 INCH LONG	22526	75060
	136-0514-00	B040350		2		. SOCKET,PLUG-IN:MICROCIRCUIT,8 CONTACT	82647	C930802
						(ATTACHING PARTS FOR CKT CD ASSY)		
-134	213-0146-00			4		SCR,TPG,THD FOR:6-20 X 0.313 INCH,PNH STL	83385	OBD
						- - - * - - -		
-135	214-1061-00	[1]XB010105		1		SPRING,GROUND:FLAT	80009	214-1061-00

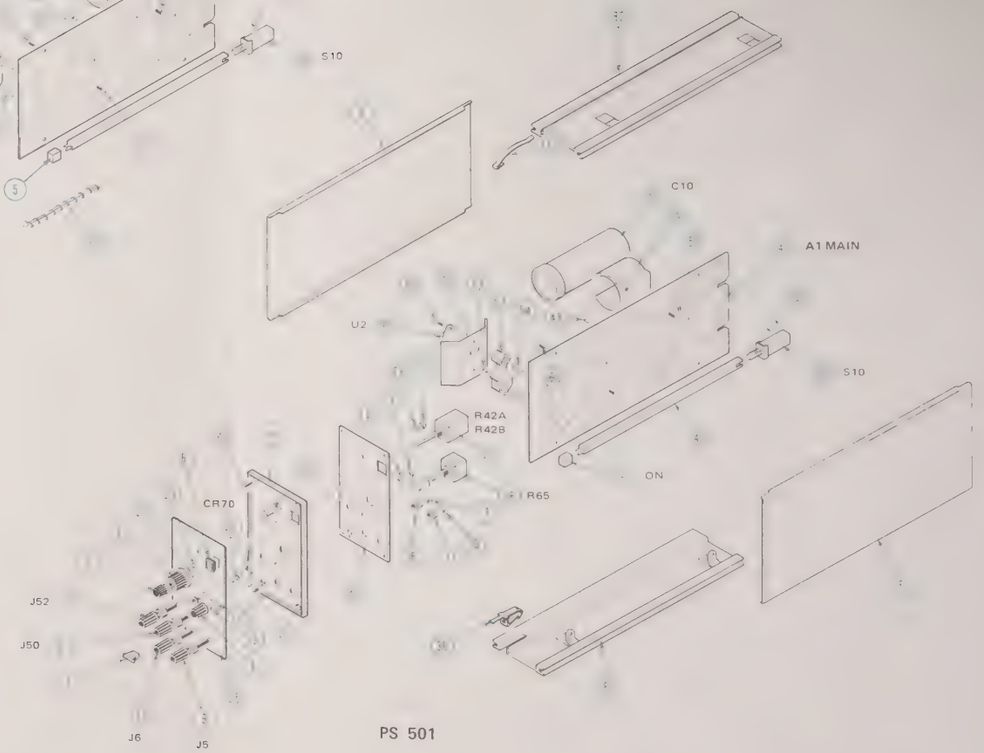
[1]PS501-2 only.

PS 501-2





PS 501-1



PS 501

ACCESSORIES

Index No.	Tektronix Part No.	Serial/Model No. Eff	Dscont	Qty	1 2 3 4 5	Name & Description	Mfr Code	Mfr Part Number
	070-1301-01			1		MANUAL,TECH:INSTURCTION	80009	070-1301-01

MANUAL CHANGE INFORMATION

At Tektronix, we continually strive to keep up with latest electronic developments by adding circuit and component improvements to our instruments as soon as they are developed and tested.

Sometimes, due to printing and shipping requirements, we can't get these changes immediately into printed manuals. Hence, your manual may contain new change information on following pages.

A single change may affect several sections. Since the change information sheets are carried in the manual until all changes are permanently entered, some duplication may occur. If no such change pages appear following this page, your manual is correct as printed.

SERVICE NOTE

Because of the universal parts procurement problem, some electrical parts in your instrument may be different from those described in the Replaceable Electrical Parts List. The parts used will in no way alter or compromise the performance or reliability of this instrument. They are installed when necessary to ensure prompt delivery to the customer. Order replacement parts from the Replaceable Electrical Parts List.

CALIBRATION TEST EQUIPMENT REPLACEMENT

Calibration Test Equipment Chart

This chart compares TM 500 product performance to that of older Tektronix equipment. Only those characteristics where significant specification differences occur, are listed. In some cases the new instrument may not be a total functional replacement. Additional support instrumentation may be needed or a change in calibration procedure may be necessary.

Comparison of Main Characteristics

DM 501 replaces 7D13		
PG 501 replaces 107	PG 501 - Risetime less than 3.5 ns into 50 Ω.	107 - Risetime less than 3.0 ns into 50 Ω.
108	PG 501 - 5 V output pulse; 3.5 ns Risetime.	108 - 10 V output pulse; 1 ns Risetime.
111	PG 501 - Risetime less than 3.5 ns; 8 ns Pretrigger pulse delay.	111 - Risetime 0.5 ns; 30 to 250 ns Pretrigger Pulse delay.
114	PG 501 - ±5 V output.	114 - ±10 V output. Short proof output.
115	PG 501 - Does not have Paired, Burst, Gated, or Delayed pulse mode; ±5 V dc Offset. Has ±5 V output.	115 - Paired, Burst, Gated, and Delayed pulse mode; ±10 V output. Short-proof output.
PG 502 replaces 107		
108	PG 502 - 5 V output	108 - 10 V output.
111	PG 502 - Risetime less than 1 ns; 10 ns Pretrigger pulse delay.	111 - Risetime 0.5 ns; 30 to 250 ns Pretrigger pulse delay.
114	PG 502 - ±5 V output	114 - ±10 V output. Short proof output.
115	PG 502 - Does not have Paired, Burst, Gated, Delayed & Undelayed pulse mode; Has ±5 V output.	115 - Paired, Burst, Gated, Delayed & Undelayed pulse mode; ±10 V output. Short-proof output.
2101	PG 502 - Does not have Paired or Delayed pulse. Has ±5 V output.	2101 - Paired and Delayed pulse; 10 V output.
PG 506 replaces 106	PG 506 - Positive-going trigger output signal at least 1 V; High Amplitude output, 60 V.	106 - Positive and Negative-going trigger output signal, 50 ns and 1 V; High Amplitude output, 100 V.
067-0502-01	PG 506 - Does not have chopped feature.	0502-01 - Comparator output can be alternately chopped to a reference voltage.
SG 503 replaces 190, 190A, 190B	SG 503 - Amplitude range 5 mV to 5.5 V p-p.	190B - Amplitude range 40 mV to 10 V p-p.
191	SG 503 - Frequency range 250 kHz to 250 MHz.	191 - Frequency range 350 kHz to 100 MHz.
067-0532-01	SG 503 - Frequency range 250 kHz to 250 MHz.	0532-01 - Frequency range 65 MHz to 500 MHz.
TG 501 replaces 180, 180A	TG 501 - Marker outputs, 5 sec to 1 ns. Sinewave available at 5, 2, and 1 ns. Trigger output - slaved to marker output from 5 sec through 100 ns. One time-mark can be generated at a time.	180A - Marker outputs, 5 sec to 1 μs. Sinewave available at 20, 10, and 2 ns. Trigger pulses 1, 10, 100 Hz; 1, 10, and 100 kHz. Multiple time-marks can be generated simultaneously.
181	TG 501 - Marker outputs, 5 sec to 1 ns. Sinewave available at 5, 2, and 1 ns.	181 - Marker outputs, 1, 10, 100, 1000, and 10,000 μs, plus 10 ns sinewave.
184	TG 501 - Marker outputs, 5 sec to 1 ns. Sinewave available at 5, 2, and 1 ns. Trigger output - slaved to marker output from 5 sec through 100 ns. One time-mark can be generated at a time.	184 - Marker outputs, 5 sec to 2 ns. Sinewave available at 50, 20, 10, 5, and 2 ns. Separate trigger pulses of 1 and .1 sec; 10, 1, and .1 ms; 10 and 1 μs. Marker amplifier provides positive or negative time marks of 25 V min. Marker intervals of 1 and .1 sec; 10, 1, and .1 ms; 10 and 1 μs.
2901	TG 501 - Marker outputs, 5 sec to 1 ns. Sinewave available at 5, 2, and 1 ns. Trigger output - slaved to marker output from 5 sec through 100 ns. One time-mark can be generated at a time.	2901 - Marker outputs, 5 sec to 0.1 μs. Sinewave available to 50, 10, and 5 ns. Separate trigger pulses, from 5 sec to 0.1 μs. Multiple time-marks can be generated simultaneously.

NOTE: All TM 500 generator outputs are short-proof. All TM 500 plug-in instruments require TM 500-Series Power Module.

TEKTRONIX®
committed to technical excellence

MANUAL CHANGE INFORMATION

PRODUCT PS 501/-1/-2
070-1301-01

CHANGE REFERENCE M30289
DATE 11-3-77

CHANGE:	DESCRIPTION

EFF SN B052650

ELECTRICAL PARTS LIST AND SCHEMATIC CHANGES

CHANGE TO:

A1	670-2116-02	CKT CARD ASSY:MAIN (PS 501-1 ONLY)
R42B	311-1124-00	RES.,VAR,NONWIR:250 OHM,0.25W (PS 501-1 ONLY)
R83	321-0188-00	RES.,FXD,FILM:887 OHM,1%,0.125W (PS 501-1 ONLY)

R42B and R83 are shown on the POWER SUPPLY diagram.